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THE AMERICAN PUBLIC HEALTH ASSOCIATION,
THE AMERICAN ASSOCIATION OF SCHOOL PHYSICIANS AND THE
NORTHWEST CONFERENCE ON CHILD HEALTH
AND PARENT EDUCATION

Minneapolis, September 30 to October 5, 1929

AMERICAN CHILD HEALTH ASSOCIATION

NOVEMBER 1, 1929

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PART I
PAPERS READ

THE WHITE HOUSE CONFERENCE ON CHILD HEALTH AND PROTECTION

H. E. BARNARD, PH.D., *Director*

THESE are days of rapid development. The science we thought sound a decade ago is now less firmly based. The educational systems by which we were taught are taking on new forms. These modern movements, although we recognize them as but significant of the ever changing order, are, more definitely than ever before, developing in the laboratory of experiment as well as in the school of experience. Today we are not disposed to take our information on faith. We want facts. And so, in these great conferences at Minneapolis in which in many fields we shall work for the public good, we shall reach conclusions and accept new plans for our efforts only after we know they rest on a scientific basis.

For six years the American Child Health Association has been gathering factual material. The character of its efforts is well illustrated by the report of the survey of 86 cities which, although published but a few years ago, now, in so far as the subject matter discussed is concerned, occupies the position of authority in the library of public health knowledge. Reports of a school health study now being published throw a clearer light on the health and mental status of the school child than we had up to the time these studies were made.

Now we have come to the time when our experience as public health workers, our research in the scientific laboratories, our activities in the field of public service, can all be pooled for the solution of the greatest of human problems and the development of our finest and most important national resource. For, more than our lands, more than our mines, more than our forests, or our industrial wealth, our 25,000,000 babies and school children are our most valuable asset. What these children will be doing for our country and for the world 20 years from now is being determined as they play and learn in their homes and in the schoolrooms today, for youth grows to strong and vigorous manhood and womanhood in direct proportion to the character of the care and education it receives.

The last of July President Hoover called to the White House a group of men and women to take stock of the progress and the present situation of the health and protection of childhood; that out of that investigation plans may be developed for further progress in these directions.

In discussing his thought he showed not only his complete grasp of the relation of children to the future of the race but he gave to the group a plan of action so definite, so practical, and so specific that we may be sure the value of the White House Conference on Child Health and Protection will be determined, not by the magnitude of the objective set for us by President Hoover, but by our ability to execute his purpose.

May I present to you in brief paragraphs, taken from his statements to the Planning Committee and from his frequent discussions of the subjects he built into the Child's Bill of Rights, some of the ideas he has in mind.

"I have suggested that in order that these investigations and recommendations may be brought about in the most effective manner, that a number of committees should be organized to cover different phases of the subject, embracing the leadership in thought and knowledge of these subjects throughout the nation; that after these investigations have been carried forward and conclusions reached by these committees, then that we should call a White House Conference of public officials, associations, and others interested in these questions, to consider the recommendations. Further, that such of the policies as may be adopted by that conference should be followed up by definite organizations throughout the country.

"We realize that major progress in this direction must be made by voluntary action and by activities of local government. The federal government has some important functions to perform in these particulars, all of which will need to be considered, but we may save years in national progress if we can secure some measure of unity as to view and unity as to program, more especially as these views and programs are to be based on searching examination of fact and experience."

And now I pass on to you the concluding paragraph of his brief

address, for, in effect, it directs our every research activity and establishes a broad foundation on which the work of the conference will be built. May I quote from President Hoover's charge to his Committee:

"I need not urge upon you the fundamental importance of this undertaking. The greatest asset of a race is its children, that their bodily strength and development should prepare them to receive the heritage which each generation must bequeath to the next. These questions have the widest of social importance that reaches to the roots of democracy itself. By the safeguard of health and protection of childhood we further contribute to that equality of opportunity which is the unique basis of American civilization."

The White House Conference on Child Health and Protection will be the third of a series of conferences called by our Presidents to consider the problems of the child. The first was called by President Roosevelt in 1909 primarily to consider the care of the dependent child. The year following this conference the Children's Bureau was organized and a new department of our government was established for promoting the welfare of the child.

President Wilson in 1919 directed the Children's Bureau to organize a second conference. In the last year of the war it seemed desirable to take stock of the quality of our children. And so, stimulated by the enthusiasm of those stirring days and by the interest crystallized into definite action by the results of the physical examinations of the youth called to the service of our country, which showed a very large percentage physically unfit for that service, the Children's Bureau set to work to make this appraisal. In a single year, in cooperation with many other agencies, six million children were examined and their health status recorded. The data so obtained were available for the 1919 conference which, before its close, recommended standard procedure for the consideration of such subjects as maternity and infancy, child health, and dependency and delinquency.

Ten years have passed since then. We are no longer suffering the effects of postwar conditions. We have enjoyed a decade of unparalleled prosperity. We believe our children have profited even more greatly than our adult population as a result of that prosperity.

We believe they live under better home conditions; that they are better nourished; that the schools in which they are educated are better equipped and supervised. But we do not know whether these beliefs rest on sound facts or are largely developed out of our desire that our children should have all the things which will make them finer citizens in the years ahead.

The work of the world is now carried on with facts established by experts. We are long past the period when physical labor alone is productive. Brain and brawn are joined in common effort today. The President put very clearly the need for a better interpretation of the value of the product of trained minds when he said: "There is a crying need to make available in simple, lucid terms the findings of experts. While this need remains unfulfilled child lives are not only falling short of normal possibilities, but are actually being marred and wasted through ignorance. The wisest move in the conservation of child life at the present moment seems to be to develop technique and machinery to translate scientific data into human terms."

The conference which the President has called is charged with getting at the facts so that when its work is completed we shall have at hand a definite measure of the quality of our children in terms of their physical health, their mental equipment, their social well-being. In this connection I again quote the President: "From health in the physical sense, we have arrived at the ideal of health as wholeness, signifying the development of the child in his complete endowment—physical, mental, emotional, and spiritual."

Can we evaluate our children, not in the thought that having set up measuring rods we can then standardize the product, but that with certain knowledge of the ideals to which we should strive we may be the better able to direct our activities toward their attainment. The President has made this thought very clear. On several occasions he has discussed it in these terms: "I would like to know what the normal is in children. Parents would like to know what it is. The nation needs to know what it is. I do not say the 'perfect child,' because I do not wish to ask the impractical—but there must be some basis upon which parents, teachers, and health authorities can check

up the individual child and see that it keeps normal." "Standards are wanted, but not standardized children. The ideal child is the optimal child when all factors are balanced. These factors may be different for different children. We want them different, because the greater the varieties of good combinations, the richer will be the range of types, and the greater will be the contributions made to our national life."

With these thoughts in mind, the Planning Committee of the White House Conference on Child Health and Protection has tentatively outlined the work it proposes to do and is organizing committees through which the studies will be made. The President has called to his aid men and women who represent not so much the several organized groups interested in the health and well-being of the child as those who have a particular approach to the problems to be studied. Some twenty committees will be organized for work in the fields which relate to the health, education, and protection of the child. Five major groupings of the problems have been tentatively made, as follows: Medical Service, Public Health Administration, Education and Training, The Handicapped Child, and Public Relations. Under these groupings it is proposed to determine the facts which influence child life from the prenatal period through infancy, childhood, and adolescence.

In the Medical Service are Committees on Growth and Development, Prenatal and Maternal Care, and on Medical Care for Children. In this section there will be obstetricians, pediatricians, anatomists, anthropologists, biometricians, nutrition specialists, dentists, child research directors, child psychologists, educational psychologists, psychiatrists, educational research specialists, sociologists.

Under section two, which relates to Public Health Administration, the conference will discuss the technique of the work now being carried on by local, state, and the federal health agencies. The section will consult, in developing this work, health officers, the research investigators of the medical departments of the government, and all the groups which have a part or which may properly take part in a study of the broad question of the relation of the activities of the

community and of the state to the health of our children. A special division of the public health administration studies will relate to communicable disease control and for this study we shall call to the service of the conference workers in the highly specialized fields so well served by epidemiologists, immunologists, bacteriologists, parasitologists, vital statisticians, pediatricians, health officers, and of course general practitioners of medicine and of dentistry. Another important subsection will have to do with milk production and control, for milk, as the most important single item of food for children, must have adequate supervision. We have made amazing strides in the production and handling of milk in the past 20 years but in spite of our knowledge and the application of that knowledge to the industry we are still too frequently shocked by widespread epidemics which in the years to come cannot be allowed to put such heavy burdens on our children.

The third section of the conference is on Education and Training. We still too often think of the education of children as starting in the kindergarten or primary grade when, of course, the education actually begins in earliest infancy and the habits and traits acquired long before the child leaves the home for school largely determine his adaptability and his attitude toward life.

Parental education becomes, therefore, an essential part of our program and home economics in its broad field of home management with relation to child care and training, education of parents, environment, and living conditions will be given a new interpretation.

No phase of child life has been studied more carefully than that of child labor and much of the work of the past has been directed toward the enactment of legislation for the protection of the child against exploitation by industry. So great has progress been in this direction that a new phase of the subject is now uppermost in our minds—that is vocational and educational guidance in preparation for occupational life. Recognizing the fundamental importance of early training to accept responsibility, the conference will review the case of the juvenile worker and endeavor to relate his childhood duties to his life's work.

Recreation and play are vital factors in child life. We now appre-

ciate the fact that qualities of leadership, fine sportsmanship, and ambition often are acquired more definitely on the playground than in the schoolroom. Recreation and physical education therefore become an important study for the conference. Particular attention will be given to a consideration of the effect of competitive athletics on boys and girls, to the recreational opportunities for country children, and to a study of the possibility of coordinating recreation and education in the school system.

Through all the ages we have given alms to the unfortunate without determining the reason why charity is necessary. The section on The Handicapped Child will consider the problem of the handicapped with special reference to a study of the causes which bring the blind, and deaf, and crippled to our attention. Much progress has been made in removing the causes of physical defects but the work has but started. The studies of these conditions will be made by experts and specialists in the care of the underprivileged who, because of abnormalities of mind or body need our special care.

Large groups of our children are handicapped through social conditions. For the most part they are out of our sight, and yet by the thousands they flow through our Juvenile Courts or become wards of state and social agencies. It is this group of children growing up homeless and undirected which, in adult life, emphasizes many of the problems of society. Any contribution the White House Conference may make in its studies of these children will be the greater if its experts, out of the data already at hand and which it may develop by further studies, can lift this group of underprivileged children to a more normal social status.

The section on Public Relations is the medium through which the findings and recommendations of the conference will be interpreted to the public.

In closing may I state the aims of the White House Conference for Child Health and Protection in the words of President Hoover: "We already have enough knowledge which, if brought together, compared and sorted would give us some approach to the normal child. The crux of the problem is as quickly as possible to bring what knowl-

edge we have into the open, broadcast it, and make it familiar to the average busy but deeply concerned parent."

"We await from the scientific world that formula which will enable all those who care for children, who seek a better era, to mould the boys and girls of today into stalwarts to whom we entrust our hopes of the future."

THE RÔLE OF THE SCHOOL PHYSICIAN

CHARLES H. KEENE, M.D.

Professor of Hygiene, University of Buffalo;

Director, Summer School Courses in Physical Education, Harvard University

THE need and value of health activities in schools has been recognized by educational leaders. The National Education Association has placed health first on its list of the six major aims of education.

The program of school health gradually evolved during the last half century may be divided into seven major parts: the sanitation of the school plant; the hygienic arrangement of the school program; the health of teachers; the training of teachers for health activities; physical education; health training and instruction; and health supervision.

Health supervision is that part of the program, which has been called medical inspection. Progressive educators and health officials no longer consider it as a mere "medical inspection" for acute communicable disease. It has passed from a primitive scheme for determining diseases and defects, through the phase of correction of defects and the restoration of the individual to the normal, and has now the same aim and ideal that basically actuates all public health activities—prevention. With this changing of medical inspection into health supervision, there has come an enormous broadening of the scope of the work.

With this broadening, the duties of the school physician have increased enormously. Formerly, he had one major duty—the prevention of acute communicable disease. Today he has at least four:

sanitary inspection of the school plant; detection and prevention of acute communicable diseases; health and physical examinations of all pupils, teachers, and janitors; and advice and instruction in health and health teaching to Board of Education, Superintendent of Schools, principals, teachers, parents, and pupils.

As sanitary inspector, an annual examination of health factors and facilities should be one of the first duties at the opening of the school year. This covers such general factors as toilets, seating, lighting, blackboards, heating and ventilating, cleaning processes, and precautions against the fire risk. Certain variables, such as heating and ventilating, cleanliness of windows and blackboards, condition of toilets, seating of pupils, neatness of premises and of pupils, and the efficiency of cleaning methods, should be inspected at least once each month. In seating, it is not only necessary for all pupils to have a proper seat and one properly placed as regards light, but there is the very definite problem of placing most advantageously, in the best lighted location and near the blackboards on which work is most frequently done, those children whose vision is definitely diminished. The partly deaf child, also, needs special seating consideration. He should be placed so that his better ear is toward the teacher and toward the class. As these pupils frequently depend partly on lip reading for their knowledge of class activities, the teacher should be instructed to stand, when speaking, in good light with her face toward such impeded pupils.

The adequate control of communicable diseases demands a careful physical inspection of each child within forty-eight hours after the opening of the fall term, and after any vacation or closure of school lasting more than eight days. This may be the ordinary, quick classroom inspection. Almost invariably, in a community of any size, there are found at such inspections cases of acute communicable disease, which, if not detected, would start an epidemic. Whenever an epidemic threatens the community, a classroom inspection of all pupils is necessary. This should be supplemented by the use of preventive serums whenever possible. Whenever there has occurred, in any one classroom, more than one case of acute communicable disease in any one week, careful classroom inspection of the pupils in that

room should be made. Wherever the possibility of diphtheria is suspected, the inspection should be supplemented by taking cultures of the nose and throat of each child. The school physicians should conceive it a part of his duty to persuade parents to have their children immunized by toxin-antitoxin against diphtheria.

Teachers and nurses should be informed so that they may recognize the early signs of acute communicable disease. Every suspicious case should be sent by the principal, teacher, or school nurse to the school physician, who will make the essential careful physical inspection. In every school building, there should be a chart of the district, upon which, by means of thumb tacks, should be kept a current record of the different kinds of acute communicable diseases.

Following the finding of a case of communicable disease in a classroom, the physician should see that all the necessary steps for adequate sanitary cleansing are carried out. Up-to-date communities no longer fumigate school classrooms in the belief that such fumigation checks the spread of communicable disease. The better process is a strenuous cleaning and scrubbing with hot water, soap, and antiseptic solutions. This scrubbing should include the floors, the seat and desk of the child having the disease, and all things which he might have touched, such as door handles, edges of doors, door casings, banister and hand rails, and handles of bubbling fountain, faucets, and toilets.

We know that the closing of school as a means of preventing or checking an epidemic is about the worst thing that could be done. With an adequate system of health supervision, where pupils are under the daily observation of trained doctors, nurses, and teachers, children are safer attending school than anywhere else. When schools are closed, the well and the sick mingle indiscriminately in homes, on the street, and particularly in the motion picture house.

The health and physical examination should be what the term indicates. A mere physical examination is not sufficient. It should be supplemented by a careful inquiry into those habits of the child which may affect the health of the individual concerned, or of the group with whom he associates. This should cover such factors as the type and amount of food, the time and method of eating, the amount and condition of sleep, the amount of activity and rest during waking hours,

the use of fresh air and sunshine, and of play and recreation. Careful investigation of the proper use of the eye, the kind and amount of light used, the size and type of print, and of habits of posture is essential.

The physical examination should include the history of the child, and careful examination of sight, hearing, heart, lungs, nose, throat, skin, mouth, and posture. This examination is largely a screening process. Definite diagnosis and treatment should rest in the hands of the family physician. The examination should be made with the aim not so much of finding defects and weaknesses in the child, as of finding his possibilities for health and school progress. In other words, a positive upbuilding attitude is essential to true success. The physician should remember that while the use of scales to obtain height and weight gives an index of nutrition, and is valuable as a means of stimulating interest in health habits, height and weight tables should be supplemented by his knowledge of racial, family, and individual characteristics as related to relative weight and height, and by his judgment of the nutritional condition of skin and underlying tissues.

Every community should organize some process whereby the examinations given by school physicians might be standardized, so that the wide variations now existent between the results of examiners in the same city, and between those of cities having similar populations, might be wiped out. These variations tend to make our work ridiculous in the eyes of critics.

Such an examination and investigation requires time. It is doubtful if, on the average, more than six pupils can be adequately examined per hour. When we see reports indicating that physical examinations have been made at the rate of thirty to sixty per hour, we suspect that such examinations are useless.

As health advisor, the school physician should be an interested counselor of the school nurses regarding their own health; and as to the status of their information concerning the early signs of communicable diseases of children, the prevention of such diseases in their school district, the rules for the exclusion of children from school and their readmission, and knowledge of the diagnosis of

minor infections, particularly of the skin, and their efficiency in first aid. To the parents he should be a mine of information concerning the early signs of communicable diseases; the need and method of correction of physical defects; and on matters of home and school hygiene, particularly such as diet, rest, play, posture, fresh air and sunshine, play and recreation, school load, and the load of social activities carried by the pupil. Opportunities should be devised so that the school physician may make repeated contact with parents. If possible, the parents should be present when the child is given the health and physical examination. First-hand information acquired by the parent on such an occasion is much more likely to result in the correction of defects and the enforcement of home hygiene than will be brought about by a mere written notice sent to the parents.

He should advise teachers and principals as to the sanitation of the building, heating, ventilating, lighting, sight conservation, seating, and care of toilets and premises. The organization, administration, and time element of the school program have such important health factors that he should keep informed as to procedure, and make suggestions for improvement wherever he sees a need.

His knowledge of anatomy, physiology, and hygiene should be used to instruct teachers and nurses in certain phases of health training and instruction. This is particularly true in such matters as the control of communicable disease, the effect upon life and happiness of certain chronic preventable diseases, and the basic elements of first aid.

He should instruct teachers concerning mental hygiene. They should understand that their own mental and physical health has a very definite bearing on the mental attitude of themselves, and of pupils in the classroom. He should impress upon them the great mental and physical value of stimulating ambitions. The ambition to be liked and thought well of is a perfectly normal one, so is the desire to be strong and straight in order to participate better in athletic contests. These ambitions distinctly encourage participation in health activities. The ambition to be beautiful, too, is a perfectly normal desire, and beauty, when it comes from within instead of being applied on the surface, is an excellent health index. He should help them to understand that there are certain deterrents to mental health likely to

creep into the classroom. Some of these are copied directly from the teacher when she exhibits sarcasm, temper, hasty reaction to irritations, or gives physical punishment. We find these rehearsed and accentuated in the daily life of the children, both at school and in the home. Certain pedagogical faults, such as threats, the arousing of jealousy, criticism which is destructive only, the creation of worry, and fear of corporal punishment, create mental deterrents.

In many communities efforts are being made to use teachers for a considerable portion of the health and physical examinations of children. In some states this is required by law or regulation. The duty of training these teachers for this special work naturally devolves upon the school physician.

In addition, there are certain special activities for the school physician, such as the physical examination of students desiring to participate in competitive athletics. No pupil should be allowed to enter such competitions until he or she has passed a thorough physical examination to determine that he may participate without physical injury. He should be informed as to the content of the physical education activities, and see to it that these are adapted to the age, sex, physical ability, and endurance of the children who are expected to do them. He should prescribe and supervise special exercises for those exhibiting remedial postural defects. He ought to give definite instructions to both pupils and teachers on certain phases of the general health teaching program.

He should encourage principal, nurses, and teachers to bring to his attention those children whose health habits, or whose physical condition or mental attitude could be materially improved by his help and advice.

He should feel responsible for the personal health of principal and teachers. He should advise them in groups and singly on such factors as health habits, particularly regarding food, rest, fresh air, and physical exercise, and on the need and value of correcting their personal physical defects. The time will undoubtedly come when principals and teachers will receive the same care and attention from the school physician that pupils now do. Such a service has great economic value to the Board of Education. It will improve the teaching process,

because the more healthful a teacher is the better work she will do, and it will diminish the amount of teacher absences because of personal illness. This will diminish the amount of money needed for the employment of substitutes.

The school physician also has a duty as advisor to the superintendent and to the Board of Education on such factors as the organization of the school health program and on the sanitation of the school plant. He should advise them regarding the time elements in the program of pupils, and as regards the teaching load that teachers may be expected safely to carry. His advice should be valuable in establishing the content and method of procedure in the physical education program. Before he can do this safely or profitably, however, he should inform himself as to the values and methods of good physical education practice.

It devolves upon the school physician to bring about definite correlation of his school activities with those of the local Health Department. This includes the immediate reporting of all cases of communicable disease to that department. This should be done immediately by telephone, and by a written report forwarded not later than the end of that school day. In return he has a right to insist that he receive cooperation from the Health Department; particularly that he or the central office of the Public School Department be informed, not later than ten o'clock each morning, of all cases of acute communicable disease reported during the previous twenty-four hours.

He should establish friendly relations with janitors and caretakers. Their cooperation means much, particularly when he is trying to prevent or check an outburst of acute communicable disease, or to secure better cleaning or ventilating.

He should establish relations with organized groups of parents and teachers. Membership in the local Teachers Association, and in the Parent-Teacher Association is a distinct asset. He will learn much from these groups as to the community attitude toward the work he is trying to do. Such contact will make much more effective the rapidly spreading effort to prepare the child for admission to school life—the so called “preschool roundup.”

He should use carefully and accurately a system of written daily,

monthly, and annual reports, so that he and the teachers, principals, superintendent, Board of Education, and community may be accurately informed of the status, progress, and value of school health activities.

In brief, the school physician should be interested, informed, and active in all those phases of school and home activity which may affect the health of the pupils for whose lives and happiness he is responsible.

A STUDY OF THE EFFECTS OF SEVEN HUNDRED AND THIRTY-SIX TONSILLECTOMIES AND SEVEN HUNDRED AND FORTY-ONE CONTROLS

JOHN D. MONROE, M.D., *Commissioner*, AND V. L. VOLK, M.D., DR.P.H.,
Deputy Commissioner of Health, Oakland County Department of Public Health,
Michigan

IT is impossible to think of any operation, or procedure, that is so commonly resorted to for the correction of any and all defects, or complaints, as is tonsillectomy. Our search through the literature on the subject reveals an abundance of material, and it seems almost a universal opinion that good results are to be expected, and that the operation is also a preventive for many ills.

Doctor Kaiser, of Rochester, New York, has done a very thorough and gratifying piece of work on Indications, based on end-results, and his conclusions seem very convincing.

Besides verifying the figures and results obtained by Doctor Kaiser and others, we have attempted to draw some conclusions as to:

First, what age group could be expected to show the greatest improvement and what complaint, if any, could be relieved to the greatest degree in that particular age group.

Second, how soon after operation results are to be expected, or what symptoms show the earliest tendency towards improvement.

Third, the effect on school progress of those having mental or physical handicaps.

Fourth, the effect on subnormal mentality, or those who might be

making normal progress in school, yet who are mentally slow and with a lack of application and alertness.

Fifth, the effect on the child's progress in spite of co-existing conditions not related to diseased tonsils.

It has been suggested by Doctor Brockay and others that the parents should be consulted as to the child's condition following the operation. In our study the parents' answers were sought and obtained in each case. We believe that the parents' daily observations are likely to be more dependable than any other source. We were also mindful of the fact that this should be double-checked by physical examinations before and after operation.

This study was made possible by the close contact with cases which were operated on by private physicians in conjunction with the Oakland County Department of Health Clinic. To make clear this close contact, a description of our clinic might be desirable.

This tonsil and adenoid clinic was organized because of the difficulty and expense of caring for these children in state institutions, and because of the lack of out-patient departments in our City and County Hospitals. Each case before admission to the clinic must be recommended by the family physician from both the medical and financial standpoint, carefully investigated by our field workers and by the Township Supervisor. Indigent, and those patients who are able to pay up to ten dollars, were admitted. The tonsillectomies were performed by local surgeons, at greatly reduced fees. We gratefully acknowledge the support given this clinic by the Oakland County Medical Society.

A careful history was taken and physical examination made on each child upon admittance and through this arrangement eight hundred and twenty-nine cases were operated on and studied.

In determining the candidates for the clinic and for follow-up work uniform blanks were used throughout.

It was determined early in the study to check up as to improvement rather than complete cessation of complaints or symptoms. Although in many cases the symptoms or complaints were absolutely absent after the operation, yet it seemed fair that our study be confined solely to improvements

In addition to the study of retarded school progress and subnormal mentality, a study was made of the effects of the operation upon children not gaining weight and not developing normally, the effects upon those with evidence of malnutrition, the effects upon those with marked enlargement of the cervical glands, the effects upon those with rheumatic manifestations and those who complained of colds and sore throats.

In Table Number One, we have a general summary of cases studied before and after the operation. There apparently was no complaint or symptom that was not improved. In our study of cervical glands, we took only those cases with marked enlargement, and, out of 191 cases studied, 48 children failed to show improvement. The most striking improvement came in that group with frequent colds and sore throats. Five hundred and thirty or 72 per cent of the cases studied had this complaint before the operation, with 102 failing to show any improvement.

TABLE I

STATUS OF COMPLAINTS BEFORE AND AFTER OPERATION

Total Number of Children Studied—736

Complaints	Complaints Before Operation		Children Failing to Show Improvement After Operation	
	No.	Per cent	No.	Per cent
Not Gaining Weight and Not Developing Normally	359	48.7	101	13.7
Evidence of Malnutrition.	188	25.5	73	9.9
Marked Enlargement of Cervical Glands	191	25.9	48	6.5
Rheumatic Manifestations	81	11.0	22	2.9
Frequent Colds and Sore Throats	530	72.0	102	13.8
Retarded School Progress.....	222	30.1	88	11.9
Subnormal Mentality	148	20.1	57	7.7

The mothers' enthusiasm in regard to the children's progress in school, following the operation, was very marked, and, of 222 children presenting this complaint, only 88 failed to show any improvement.

We were somewhat surprised to note the effect of this operation on the group with subnormal mentality. Out of 148 cases in this group, 57 failed to show any improvement. There was also a marked

improvement in those cases with evidence of malnutrition. One hundred and eighty-eight or 25.5 per cent of the cases studied presented this complaint, and there was a failure of improvement in only 73 in this group. The same beneficial results were noted in those children not gaining in weight or developing normally, and in those with rheumatic manifestations

STUDY BY AGE GROUPS

In studying the beneficial effects on the children grouped according to age (see Table Number Two), no startling or striking results were obtained. The most marked improvement of all complaints was observed in the younger age groups.

The failure in the older age groups from 13 years and over was accounted for in many ways. The longer any ailment persisted the less marked the improvement.

It naturally follows that the older age group was not as responsive to improvement in school progress and mental status as the children in the earlier age group.

STUDY OF RESULTS BY TIME ELAPSING SINCE OPERATION

In our study we have tried to draw some conclusions as to how soon after operation improvement may be expected. From the figures shown in Table Number Three, the children not gaining weight and not developing normally before the operation show slower improvement in the earlier months and reach the peak of improvement about sixteen to eighteen months after. There were no marked results in children showing signs of malnutrition although a failure of only 36.5 per cent in the first six months was gratifying.

As was to be expected, any improvement in the marked enlargement of cervical glands was not uniform at any period, but showed in a gradual improvement. Rheumatic manifestations showed a remarkable improvement during the first six months. Frequent colds and sore throats were decidedly improved during the first six months following operation. The effect on school progress and mental development was not marked during the first six months but there seemed to be a steady tendency toward improvement as time went on. Failure to improve

TABLE II

STATUS OF COMPLAINTS BEFORE AND AFTER OPERATION WITH PER CENT OF FAILURES
GROUPED ACCORDING TO AGE

Age Group	4 to 6 Years			7 to 9 Years			10 to 12 Years			13 to 18 Years			Total		
Number of Children Studied	186			273			180			97			736		
	Be-fore	Af-ter	Per cent	Be-fore	Af-ter	Per cent	Be-fore	Af-ter	Per cent	Be-fore	Af-ter	Per cent	Be-fore	Af-ter	Per cent
Complaints															
Not Gaining Weight and not Developing Normally . . .	87	23	26.4	132	40	30.3	87	19	21.8	53	19	36.7	359	101	28.1
Evidence of Malnutrition . . .	54	20	37.0	68	26	38.8	41	15	36.6	25	12	48	188	73	38.8
Marked Enlargement of Cervical Glands	49	11	22.4	68	21	32.3	51	9	17.7	23	7	30.4	191	48	25.1
Rheumatic Manifestations . .	12	3	25	31	10	32.2	17	5	29.9	21	4	19	81	22	27.1
Frequent Colds and Sore Throats	135	20	14.9	195	47	24.6	127	21	16.5	73	14	19.1	530	102	19.2
Retarded School Progress . .	29	10	36.5	96	41	43.9	60	18	30	37	19	51.3	222	88	39.6
Subnormal Mentality . . .	26	11	42.3	58	18	31	39	13	33.3	25	15	60	148	57	38.5
Failure to Show General Improvement	18	10*		22	9*		16	8.8*		10	10.3*		66	9*	

* Percentage based on total number of children studied.

TABLE III

STATUS OF COMPLAINTS BEFORE AND AFTER OPERATION WITH PER CENT OF FAILURES
GROUPED ACCORDING TO TIME ELAPSED SINCE OPERATION

Number of Children Studied in Each Age Group the Same as in Table II		6 to 12				12 to 18				18 and Over				Total	
Months Since Operation	3 to 6	192		91		220		233		736					
Number of Children Studied..		Be-fore	Af-ter	Per cent	Be-fore	Af-ter	Per cent	Be-fore	Af-ter	Per cent	Be-fore	Af-ter	Per cent		
Complaints															
Not Gaining Weight and not Developing Normally . .	100	31	31		41	14	34.4	105	28	26.6	113	28	24.7	359	101
Evidence of Malnutrition.....	52	19	36.5		24	12	50	58	23	40	54	19	35.1	188	73
Marked Enlargement of Cervical Glands	61	21	34.7		25	6	24	47	12	25.5	58	9	15.5	191	48
Rheumatic Manifestations	27	7	26		7	2	28.5	17	9	53	30	4	13.3	81	22
Frequent Colds and Sore Throats	161	33	20.5		71	13	18.3	145	23	16.5	153	33	21.7	530	102
Retarded School Progress....	60	30	50		43	17	39.5	66	15	22.7	53	26	49	222	88
Subnormal Mentality	41	18	43.9		17	8	47	48	13	27	42	18	42.8	148	57
General Improvement	12		6.3*		8	8	8.7*	19		8.6*	27	11	7*	66	9*

* Percentage based on total number of children studied.

after eighteen to twenty months might be due to factors other than the effects of diseased tonsils and adenoids.

We have not tabulated the relief from mouth breathing because the study has been done many times by others with most gratifying results.

General improvement of those cases which showed improvement in one or more complaints, was very striking, the most outstanding results being obtained during the first six months.

Out of one hundred and ninety-two cases, there were twelve failures (six and three-tenths per cent), or 93.7 per cent of the cases have shown complete or partial improvement.

STUDY OF RESULTS IN PRESENCE OF CO-EXISTING CONDITIONS

We have attempted to analyze the results of tonsillectomy on children who at the time of operation had some co-existing ailment.

From the group of 736 children who were operated on 178 have had co-existing conditions. In the analysis of the results of operation on this group (see Table Number Four), we have found that 66 failed to improve and 112 showed improvement.

TABLE IV

ANALYSIS OF RESULTS OF OPERATED CASES IN WHICH THE FOLLOWING CO-EXISTING AILMENTS WERE PRESENT AT TIME OF OPERATION OR IMMEDIATELY FOLLOWING

Total Number of Cases—178			
Conditions Present	Total Number of Children	Number Failed to Improve	Number Showed Improvement
Pulmonary Tuberculosis	26	16	10
Heart	7	1	6
Tonsilar Tissue	31	9	22
Adenoid Tissue	18	5	13
Ear	16	5	11
Chorea	5	2	3
Dental (Bad)	20	7	13
Infectious Diseases Following			
Within 10 Days	5	3	2
Sinus	13	5	8
Hay Fever—Asthma	2	1	1
Kidney	7	2	5
Nervousness	9		9
Surgical	8	1	7
Not Time to Notice	9	9	
Gynecological	2		2
Total	178	66	112

We have failed to find that co-existing ailments have any influence upon the results of the operation, with one possible exception of pulmonary tuberculosis.

From the chart it will be seen that in this group there were 26 cases of pulmonary tuberculosis of which 16 failed to improve. Considering that the number of cases that have shown improvement is almost twice as great as the number that failed to improve, the ratio of failures in improvement would be 3 to 1. These figures, of course, are too small to do more than to bear out the consensus of opinion that great care should be exercised before determining whether the child with pulmonary tuberculosis should be operated on or not.

This table, with the one exception mentioned, shows us that co-existing conditions do not seem to be contra indications for operation. As a matter of fact they might even be additional reasons for operation.

STUDY OF CONTROL GROUPS

In our control group (see Table Number Five), we have examined 741 children whose condition was apparently similar to those in the group operated on.

The general progress made by the children in the control group was, as would be expected, unsatisfactory. Children with infected tonsils retained the foci of infection and the symptoms and complaints which were present at the time of the first examination were still apparent at the check-up made a year later.

Subnormal mentality, school progress, and subnormal development were conditions for which information could not be relied upon for this group. This is due to the fact that mothers did not respond to the request to be present as they did when their children had been operated on and the other sources of information were not as dependable.

The final analysis of this table would lead us to assume that the theory of waiting for the child to outgrow its defects is not justifiable.

SUMMARY AND CONCLUSIONS

Based on an analysis of the complaints of 736 children with the results found from six months to two years after the operation and the examination and re-examination one year later of 741 children with

TABLE V

STATUS OF COMPLAINTS OF TWO GROUPS: PREVIOUS TO AND AFTER OPERATION AND CONTROL GROUP—
NOT OPERATED ON

Age Group	4 to 6 Years		7 to 9 Years		10 to 12 Years		13 Years and Over		Total											
	186		107		273		363		180		228		97		45		736		743	
	Operated On		Control		Operated On		Control		Operated On		Control		Operated On		Control		Operated On		Control	
	Percent	Control	Percent	Control	Percent	Control	Percent	Control	Percent	Control	Percent	Control	Percent	Control	Percent	Control	Percent	Control	Percent	Control
Complaints	Before	After	1 yr. ago	Before	After	1 yr. ago	Before	After	1 yr. ago	Before	After	1 yr. ago	Before	After	1 yr. ago	Before	After	1 yr. ago	Before	After
Not Gaining Weight and not Developing Normally	46.7	12.3	12.1	48.3	14.6	16.5	48.3	10.5	16.6	54.6	19.7	11.1	48.7	13.7	15.6					
Evidence of Malnutrition.....	29.0	10.7	24.2	24.9	9.5	25.0	22.7	8.3	21.9	25.7	12.3	24.4	25.5	9.9	23.9					
Marked Enlargement of Cervical Glands	26.3	5.9	28.0	24.9	7.6	30.5	28.3	5.0	22.8	23.7	7.2	10.3	25.9	6.5	27.0					
Rheumatic Manifestations	6.4	1.6	8.4	11.3	3.6	10.2	9.4	2.7	15.7	21.6	4.1	22.2	11.0	2.9	12.3					
Frequent Colds and Sore Throats	72.5	10.7	59.8	71.4	17.2	53.1	70.5	11.6	68.4	75.2	14.4	57.7	72.0	13.8	61.7					
Retarded School Progress.....	15.5	5.3	5.6	35.1	15.0	12.9	33.3	10.0	16.5	38.1	19.5	13.3	30.1	11.9	11.1					
Subnormal Mentality	13.9	5.9	3.7	21.2	6.5	9.9	21.6	7.2	6.5	25.7	15.4	13.3	20.1	7.7	8.2					
General Improvement	9.6	*	*	8.0	*	*	8.8	*	*	10.3	*	*	*	8.9	*					

* No noticeable change was observed in cases not operated on.

similar complaints but in whom operation was refused, the following conclusions may be drawn:

1 Tonsillectomy offers a child considerable relief from such common complaints as sore throat, head colds and mouth breathing. It reduces malnutrition and promotes disappearance of enlarged cervical glands.

2. The complaints have been relieved in 91 per cent of our group of cases operated on. We should not be unmindful of the fact that tonsillectomy is a surgical procedure and has its possible dangers and complications. However, in the group of cases operated on in our County Tonsil Clinic no fatalities have occurred.

3. Comparison of the results obtained from a study of the different age groups, clearly indicates that the child should be operated on in early childhood in order to obtain the maximum benefit.

4. Children with subnormal mentality and retarded school progress showed improvement in 40 per cent of all cases operated on.

5. In our series of 736 cases, co-existing conditions were present in 178 cases. These conditions should not be considered as contra indications for tonsillectomy with the exception of cases of pulmonary tuberculosis which must be very carefully studied before operation is decided upon.

6. Complaints in the control group of cases do not show any improvement during the period of one year of observation as compared with 91 per cent of improvement shown in the group of cases operated on.

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THE EARLY DETECTION AND PREVENTION OF HEARING IMPAIRMENT

HORACE NEWHART, M.D.

Professor of Otology, University of Minnesota

UNDER the above rather broad title, which was not exactly of my own choosing, I wish to address you on some aspects of a heretofore greatly neglected health problem, in the ultimate solution of which the school physician and those interested in hygiene must play a most important part.

Three years ago at the annual meeting of the American Medical Association in Dallas, Dr. E. P. Fowler, in association with Dr. Harvey Fletcher and the writer, presented before the Section on Laryngology, Otology and Rhinology two papers, one on the use of the audiometer in the detection of hearing loss among school children, the other on the possibilities for effective work of a diagnostic ear clinic in the public schools. The wide prevalence of an appreciable hearing loss and the existence of many cases of potential deafness

among this group was pointed out. The authors especially emphasized need for an accurate periodic examination of the hearing acuity of all school children

To encourage what was immediately recognized as an important forward step in applied school hygiene the Section on Laryngology, Otology and Rhinology and the House of Delegates of the American Medical Association unanimously adopted the following resolution:

WHEREAS, Recognizing the fact that the most effective means for the prevention of deafness consists in the early detection of hearing impairment, thereby giving opportunity for the prompt removal of contributing causes, and, believing it to be one of the important functions of our public school authorities to safeguard the integrity of the special sense organs, as well as the general health of the school child, be it

Resolved, by the American Medical Association that it heartily favors the provision by our public school authorities for regular periodic examinations of the hearing acuity of all public school children, such examinations to be adequate to detect even slight degrees of hearing loss.

This resolution has since been adopted by all of our national organizations of otolaryngologists, by various state and county medical societies, by the American Student Health Association, the American Federation of Organizations for the Hard of Hearing and by other groups. Such action is to be interpreted as an endorsement by competent medical authority of a movement to secure the periodic testing of the hearing acuity of all school children by the most accurate means available as the first step in a comprehensive effort to prevent deafness and to conserve the hearing. It further suggests the responsibility which rests upon those engaged in health work in our public schools.

The early detection of slight degrees of hearing loss among the very young is impossible and attempts in this direction have been very unsatisfactory. As a specific problem the detection of impairment of hearing among infants and those of preschool age must be left to the pediatrician and otologist cooperating in each individual case. However, there are many recognizable conditions appearing in the young, such as a tendency to repeated colds and involvement of the paranasal

sinuses, mouth breathing, discharging ears, swelling of the cervical glands, disorders of nutrition and of the endocrine glands, and especially a history of acute illnesses likely to involve the hearing apparatus, any and all of which suggest the probable presence of inflammatory ear disease, with consequent hearing involvement. Such findings suggest at once the importance of a careful medical examination of the hearing apparatus.

Our inability to detect slight hearing loss in the very young increases the importance of utilizing to the utmost recently devised means to conserve the hearing during the school age, the most favorable period of life to yield practical results in deafness prevention.

The older methods for testing hearing acuity, the watch test, acoumeter, whisper and conversation voice, have been shown to be inaccurate, uncertain and lacking in delicacy. Their careful application consumed too much time and effort to permit their general use. These tests were chiefly useful in detecting those cases of hearing loss already so far advanced as to require special consideration in the classroom or instruction in special groups. These methods are sadly inadequate in meeting the requirement of disclosing the large number of children having relatively slight degrees of hearing loss in whom corrective procedures should be promptly undertaken.

By the older methods hearing defects were discovered in less than two per cent of the school children tested. By contrast, our newer methods disclose the fact that a greater number have subnormal hearing in one or both ears. By the newer methods of testing hearing acuity, we mean, of course, the employment of the audiometer, developed in the Bell Telephone Laboratories by Dr. Harvey Fletcher, Dr. E. P. Fowler and associates. The instrument chiefly employed is the multiple telephone audiometer or 4-A instrument of the Western Electric Company. It possesses the many advantages of accuracy, delicacy, speed, and relative ease of application. Because it makes possible the simultaneous testing of forty school children who have had sufficient training to write to dictation it affords the most economical and satisfactory method of group testing.

Through the courtesy of the Bell Telephone Laboratories and the Western Electric Company preliminary surveys of the hearing acuity

of school children by means of early models of the 4-A audiometer were carried on in Minneapolis in 1925 and 1926. As the outgrowth of this work and because of the vision of Dr F. L. Harrington, Director of Hygiene, and a progressive Board of Education, Minneapolis was the first city in which the plan of periodic testing of the hearing acuity of school children with the audiometer was officially adopted. This was in 1926. Since that date about one hundred other cities and educational institutions have become interested in the plan.

To ascertain as far as possible how extensively and effectively the audiometer is being used, to learn how greatly it is valued by those having had experience with it, and with the further purpose of learning in what ways its usefulness might be increased, the writer in May, 1929, mailed a questionnaire to eighty-six known users of the 4-A audiometer in public school work. In all, thirty-four replies containing information directly useful for our study were received. A number frankly stated that their very limited experience did not justify an answer to the questions submitted. Several cities in which extensive work has been done did not report, doubtless because the desired information had not yet been compiled.

Some of the facts yielded by a study of the returns should be of special interest to this group. The reports received came from thirty-four cities having an aggregate population of 6,835,000 with a school enrolment of 887,012. In the school year 1928-29 a total of 225,263 pupils were tested by means of the 4-A audiometer. The thirty-four communities include twenty cities of over 100,000 population, five cities of fifty to one hundred thousand population and nine cities with a population under fifty thousand. Geographically they are scattered from Massachusetts to California and from Minnesota to Texas. Eleven of the thirty-four cities reporting are in Massachusetts where special interest has been stimulated by an active committee of the American Federation of Organizations for the Hard of Hearing. This committee is known as the Committee on the Deaf Child and is doing excellent work in research and publicity on the prevention of deafness.

The most striking feature brought out by a study of the information obtained is the wide variation in the incidence of hearing loss

reported from different cities. Using a minimum of nine sensation units loss in one or both ears as the basis for considering the child to be definitely below normal, the number of cases disclosed, after the customary retest, runs from one and thirty-three one-hundredths per cent in Denver to thirteen per cent in Cambridge, Massachusetts. The figures for St. Louis show only four and five-tenths per cent while in San Francisco the numbers reach twelve per cent.

To those accustomed to scientific observations these differences may seem disturbing on first thought. After an experience of more than three years, with opportunity to observe the work at close range, as consulting otologist to the Board of Education of Minneapolis, where already sixty-seven thousand hearing tests have been made, I feel justified in stating that these variations are easily accounted for and that they neither invalidate the claims made for the accuracy of the instruments employed nor do they lessen the value of their use for the specific purpose for which they have been developed. Quoting from a paper recently read before the Section on Laryngology, Otology and Rhinology of the American Medical Association at Portland:

"These discrepancies can be explained by definite climatic and seasonal variations affecting the upper respiratory tract, by differences in the ages of the groups tested, by the handicap of language, especially among younger children of foreign parentage, by variations in intelligence and by the economic and hygienic conditions prevailing in the homes. Likewise the experience of those conducting the tests, the frequency with which they test the apparatus, which is nearly ideal in its reliability, and especially the amount of noise existing in the room at the time of making the tests, are all factors in causing observable but largely negligible variations in the results."

We must bear in mind that the chief purpose of the tests is to single out for careful otological scrutiny those who have even a relatively slight hearing loss in order that such children may be given the benefit of early corrective treatment when it is indicated.

The replies showed that in several cities the work is directed by an otologist. In seven cities a diagnostic ear clinic is maintained. More than half of the reporters admitted difficulty in always securing an ideally quiet room. In nine of the thirty-four cities a retest is made

on all showing a six sensation unit loss. In the majority of cities, the nine sensation unit loss is employed. In a few like Cincinnati and Chelsea, Massachusetts, a still higher basis is used. In many cases the lower figure would insure greater justice to the child. When there is much noise in the testing room this figure is doubtless too small and would cause many normal children to appear hard of hearing because of the deafening effect of the noises present.

There is a wide variation in methods of grading the test papers in securing answers to the questions covering the clinical ear history of each child and in the extent of cooperation of the teacher in making the tests. There is also great variation in the handling of cases found to be below normal. In the majority of cities, children having a loss of nine sensation units are reported to the parents. In the subsequent follow-up of these cases and their after-care there is no uniformity of procedure. There is a great lack of uniformity in the amount of hearing loss which is used to determine when a child shall receive instruction in lip-reading to supplement his other classroom work and at what point he is transferred to a special class for the deaf.

In thirteen cities the plan is to test all children annually, in others every two years or less often, with the expectation of testing oftener all those previously shown to have a hearing defect. In several cities no definite plan has yet been adopted.

The 3-A audiometer, although designed largely for this purpose has not yet been extensively used for routinely testing those too young to write to dictation. This is to be expected, since at the outset it is expedient to cover as much ground as possible for the sake of introducing the new idea into the community. In Minneapolis during the school year 1928-29 efforts were concentrated on this younger group. Seventeen thousand six hundred and five children were tested, of whom nine hundred sixty-three, or five and four-tenths per cent showed a hearing loss equivalent to six sensation units or more.

Among otologists it is agreed that in all larger cities, especially in those maintaining a diagnostic ear clinic, it will be found most advantageous to retest by means of the 2-A audiometer all cases found to be defective to the extent of six sensation units or more before recommending to the parents that an otological examination be made. The

audiogram thus made has large diagnostic value and is a strong argument for the need of a careful medical examination.

The questionnaire inspired not a little favorable comment and warm approval of the use of the telephone audiometer. Only three reporters made unfavorable comment. These obviously had very little personal experience in its use.

From other sources we have heard adverse criticism expressed, chiefly to correct wrong or exaggerated statements which were given publicity. For the ultimate good of the work they needed to be challenged. Dr. Kerr's efforts in this direction have been appreciated. In our early enthusiasm over the discovery of a greatly needed aid in the effort at deafness prevention, and because of inexperience, a number of us reported too high an incidence of hearing loss. The figures were based upon the testing of groups which were too small to give accurate results, and a basis of three sensation units of hearing loss was used for the differentiation between normal and subnormal hearing. Many of the subjects were tested during the prevalence of an epidemic of colds, and many were young children of foreign parentage.

Criticism of the use of the 4-A audiometer in general is just only in so far as it applies to the methods of use but not to the instrument itself nor to the underlying principles involved in the making of the tests. Objection has been made that the 4-A audiometer is not an instrument of scientific precision. It has never been claimed by its proponents that it is. Were this the case it would be impracticable in the highest degree for it would be necessary to operate it in a sound-proof room and its use would require infinite time, pains and money.

After an experience in Minneapolis covering more than three years and involving the testing of over sixty-seven thousand pupils, we would say that the plan has proved eminently satisfactory. The most discouraging feature of the work, here as elsewhere, has been the lack of understanding and hence the lack of cooperation of the physicians to whom the children found to have a hearing defect are referred for examination. This is chiefly due to a lack of fundamental training and interest in modern prevention methods as applied to ear diseases, and suggests the need of more publicity regarding the purposes of the tests and the methods to be followed.

32 EARLY DETECTION AND PREVENTION OF HEARING IMPAIRMENT

Research now being carried on in smaller communities shows a far greater incidence of hearing loss among our rural population than in the larger cities where a program of school hygiene has long been in force.

From what has been stated it is evident that the use of the audiometer in our schools, although it has been widely introduced, is still in the pioneer stage, and there remains much to be desired in the way of improving its application and in the interpretation of the results obtained.

The outstanding conclusion which we are forced to draw from a study of the present situation is that there exists a very urgent need for standardizing the methods of using this most valuable aid in the detection of hearing loss. Not only is it necessary to standardize the technic, including the establishment of uniform bases for the retest and for notifying the parents, but there should be made a serious effort to secure uniformly effective methods of follow-up of all cases found to have hearing defects. Not until this is achieved will we be able to secure the utmost efficiency in organized efforts for deafness prevention.

It would seem to the writer that the immediate needs can be most promptly and effectively met by action by this national body, composed as it is of physicians most directly concerned in the work. We have at this time the temerity to suggest the very early appointment of a small, workable committee of those having the necessary experience, to formulate specific instructions for procedure in this work, whereby we may attain the desired uniformity which would yield the results of real scientific value and would secure the greatest effectiveness in carrying on a program to materially reduce the amount of avoidable deafness among our population. Such a committee should have among its members an otologist and a physicist or acoustic engineer to make its recommendations carry the weight of authority. A code of specific instructions compiled by those who have had actual experience in this field of work is eagerly awaited by those interested in this field of effort.

In the formulation of any comprehensive school health program, be it for a large metropolitan school system, for a state department of education or for our smaller cities and rural districts, there should be

incorporated specific provision for the periodic audiometer testing of all school children and for those needing it, an adequate follow-up to insure to each individual throughout life the greatest efficiency of his organ of hearing

THE VALUE OF A SURVEY OF SENIOR GRADES IN PRIMARY SCHOOLS IN AN ATTEMPT TO EVALUATE THE PRESENT SCHOOL HEALTH PROGRAM

J. E. DAVEY, M.B.

Chief School Medical Officer, Hamilton, Ontario

HAMILTON is a city of about 143,500 population with thirty-one Primary Schools and an enrollment of approximately 21,000 pupils. There are as a rule eight grades above the Kindergarten, but in some schools these are reduced to seven, with only one grade in the Second Form. Children entering school at five years of age graduate at thirteen or fourteen years of age from the Primary Schools.

Medical Inspection began in Hamilton with the appointment of a nurse in 1907. Gradually other nurses were added until in January, 1922, there were four nurses on the staff without any Medical Supervision.

In March, 1922, four additional nurses were appointed, and my own appointment as School Medical Officer was also made. Other additions were gradually made until in December, 1928, the staff consisted of one full-time medical officer, one part-time medical officer and ten nurses on full time. Our budget for 1928 was \$21,000 or \$1.00 per pupil enrolled for the year. Our work is carried on under the direction of the Board of Education. There is close cooperation with the Board of Health, City Hospital and other child welfare organizations. The aims and objects set forth in our program seven years ago were:

1. The discovery and exclusion of communicable or suspected communicable diseases
2. The discovery and correction of defects, disorders or faulty habits which interfere with the normal development of the child, physically, mentally, and morally

- 3 The supervision of the school buildings and environment, with special attention to heating, lighting, ventilation, sanitary arrangements and play facilities
- 4 The dissemination of Health Information and the Inculcation of Health Habits through contact with: Individual pupils and classes; Teachers, in the supervision of special cases and in the preparation of teaching material; Parents, at school and by home visits.
5. Special provision for the exceptional children

In carrying out this program we aimed to give each child an inspection once a month by the school nurse, while the Medical Officers aimed to examine each child at least twice in his school life, once shortly after admission and again shortly before leaving the Eighth Grade. Special cases were examined as frequently as necessity demanded. You will see, therefore, that from the organization of our work in 1922, until the end of the term just closed in June, 1929, a period of seven years has elapsed, so that pupils entering the Kindergarten Classes in the fall of 1922 would for the purposes of the survey be now in the Senior III and possibly Junior IV grades. Hardly sufficient time has elapsed, therefore, to make a true evaluation of the work. However, as the title of this paper suggests, an attempt will be made to evaluate the work thus far accomplished, partly for my own information and future guidance, but chiefly with the object of provoking some discussion that will benefit the School Medical Services generally.

In seeking an approach to my problem I was immediately faced with several difficulties:

1. The unreliability of statistics
2. The care and exactness with which records are kept.
3. The relative value of reliable statistics.
4. The difference in viewpoint, interest and capability of the various principals, teachers, nurses, and physicians engaged in the prosecution of the work.
5. The lack of a definite standard whereby progress might be measured.
6. The financial ability and willingness of parents and of public bodies to provide the necessary facilities and cooperation for successful health work.

For illustration, take the question of teeth. One school reports 90 per cent of its pupils with perfect teeth. Another school reports only 75 per cent, whereas actually both schools are pretty much alike, since the first takes no notice of defects in primary teeth, whereas the second records defects in both primary and secondary sets, showing the unreliability of statistics.

Or, the nurse records a defect in teeth on the child's record form, but fails to note a termination of this defect, and so gives rise to unreliable statistics.

Or, two pupils in Senior grades are reported with 100 per cent perfect teeth. So far as a superficial examination of the teeth is concerned these figures are reliable as no defects can be found in the teeth present. However, a careful survey shows that in one child half the molars that should be present have been extracted, whereas in the other all the molars are present and correct. Here we have reliable statistics with relative values only. This also shows the need of a definite recognized standard for evaluation purposes.

Or, one dentist says that all deciduous teeth should be treated and kept perfect as far as possible. Another dentist says, "What's the use—the fillings won't stay and the teeth will soon come out anyway." A difference in viewpoint affecting the evaluation of results.

Or, a parent says, "While I know my son's teeth should be treated at once, I have been out of work for weeks and cannot afford to pay a dentist." The dental clinic says, "Our regulations will not allow us to treat this case as the man owns his home and should be able to pay." Investigation shows that both statements are true and the teeth go untreated. How would this case be classified in the evaluation of results?

And what is true regarding teeth is also true in regard to many other phases of the work, so that since results in health work depend upon so many variable conditions, evaluation of these results can be only an approximation at best.

However, in spite of these limitations and difficulties there should be sufficient evidence available after seven years of health work in Primary Schools either to justify or to condemn the service. Let us then first give a general statistical statement of the work accomplished.

SEVEN YEARS OF HEALTH WORK IN PRIMARY SCHOOLS

By Nurses.

1 Number of Children Inspected	1,501,100=21,000 per mo
2. Defects Terminated	27,280
3 Referred to Clinics	22,410
4. Homes Visited	39,610
5. Health Talks in Classrooms	8,730
6. Excluded for Contagion.	8,750

By Medical Officers:

1. Complete Inspections	4,510
2 Routine Inspections	35,650
3: Parents Present	2,860
4 Defects Recommended for Treatment	26,400
5 Homes Visited	517

We next present a portion of the summary of the work for the year 1928 that will more fully explain some of the above references.

Referred to Clinics (all grades):

Chest	45
Dental	2,674
Eye, Ear, Nose and Throat	477
Postural	313
Psychiatric	23
Sick Children	63
Skin	5

TOTAL. 3,600

Exclusions (all grades):

Conjunctivitis	47
Impetigo.	66
Pediculosis	231
Ringworm	17
Scabies	47
Suspects:	
Chickenpox	41
Measles	27
Mumps	212
Scarlet Fever	6
Whooping Cough	8
Miscellaneous (including coughs, coryzas, and so forth)	417

TOTAL 1,119

Defects recommended for action by School Medical Officers in pupils examined in all grades:

Adenoids	281
Goiter.	126
Hearing	76
Hearts	62
Lungs	73
Malnutrition	576
Orthopedic and Postural.	1,566
Sight	234
Teeth	1,167
Tonsils.	500
Miscellaneous	863

TOTAL 5,524

At the end of each year the record forms of those passing out of the Primary Schools are collected and filed at the Central Office of the Board of Education. Two years ago at the close of the 1926-27 term, we made our first survey of these forms to see how we were getting along. The statistical findings were a revelation. Out of 1,117 forms examined I found:

Pupils with no medical examination...	51
Pupils with one medical examination	792
Pupils with two medical examinations	197
Pupils with three medical examinations	58
Pupils with four medical examinations	19
Number of defects found.	688
Number of defects terminated.	111=16 per cent

An investigation showed that the apparently poor results were due chiefly to faulty records, and during the following year emphasis was laid upon this part of the work, so when the next summary of 1927-28 was made we found considerable improvement as follows:

Record forms examined	1,193	
Pupils with no medical examination.	15	
Pupils with one medical examination	669	
Pupils with two medical examinations....	366	
Pupils with three medical examinations.....	107	
Pupils with four medical examinations	29	
Pupils with five medical examinations	6	
Pupils with six medical examinations	1	
Number of defects found....	3,266	
Number of defects terminated..	1,738	
Number of non-cooperative, impossible of correction, and so forth	218	=60 per cent

For the year just closed, 1928-29, and for the purpose of securing information for this paper we made a survey of the Junior IV and Senior IV classes with the following results:

Record forms examined ...	3,315	
No medical examination	136	
One medical examination.	1,841	
Two medical examinations	916	
Three medical examinations....	311	
Four medical examinations.....	84	
Five medical examinations	23	
Six medical examinations.....	4	
Number of defects reported (excluding postural and glandular).....	8,353	
Number of defects terminated....	4,956	
Marked non-cooperative	148	
Marked impossible of correction	831	
TOTAL ..	5,935	=71 per cent
Leaving not corrected.	2,418	

An analysis of these non-terminated defects shows:

Teeth	1,300
Tonsils	340
Malnutrition	500
Defective Nasal Breathing	180
Miscellaneous	98
	<hr/>
	2,418

The question naturally arises, "Is this a satisfactory showing for a School Medical Service and if not, what and where is the difficulty?"

First, take the question of teeth. How does it come that 1,300 defects remain untreated in Junior IV and Senior IV classes? Several qualifying explanations may be made:

- 1 If Senior and Junior IV had been recorded separately it would be found that the great percentage of these cases were in Junior IV classes which had been only recently re-examined with no time for correction intervening before the survey was made. Many of these will be now terminated.
- 2 Our free dental clinics are under the control of the local Board of Health and in spite of frequent and urgent demands by the M O H. for increased staff, they are insufficient to handle the number of cases applying for treatment, with the result that school nurses are frequently requested not to send any more cases for weeks at a time.
- 3 In some of these cases the defects will be in deciduous teeth which the family dentist refuses to treat.
4. It is quite possible that some of these cases have been terminated but the termination has not been recorded on the record form.

Take the matter of tonsils. Why have 340 tonsil cases not been terminated? Here again several reasons may be given:

1. The defect may have been marked for very good reasons when the child was six or seven years of age. No immediate action was taken and no further tonsil trouble experienced during the intervening years. No termination has been recorded.
2. A difference in opinion between the family physician and the school medical officer.
3. Recent defects without time for termination.

Similarly with malnutrition. In our early years all cases 10 per cent underweight were marked as defects. We now know that a large

percentage of these are quite normal but the defect has not been marked terminated. The cases of defective nasal breathing are largely those of deflected septi, which the specialists will not touch until complete growth has been attained. It is evident, therefore, that to further improve our statistical position we must endeavor to.

Improve our system of recording terminations

Strive to secure increased dental facilities.

Encourage a program of closer cooperation, between school medical officers and family physicians and dentists

Arrive at some definite system of marking terminations that can be universally applied

So much for statistics. What other evidences are there whereby we may estimate the value of our services?

1. Contagious Disease. This work is under the direct control of the Local Board of Health. However, the school services cooperate to the fullest extent.

In 1922 when we began our work there was an epidemic of diphtheria in several of the schools. We secured the consent of the Board of Education to have voluntary immunization carried on in the schools. This was begun by the Board of Health and has been carried on regularly since. The results have been remarkable:

In 1922 with a population of 118,000 there were 747 cases with 32 deaths.

In 1925 with a population of 122,000 there were 232 cases with 14 deaths.

In 1926 with a population of 122,000 there were 121 cases with 3 deaths.

In 1927 with a population of 123,000 there were 11 cases with 1 death.

In 1928 with a population of 130,000 there were 13 cases with 3 deaths.

Had the incidence and death rate of 1922 and the six preceding years continued during the six succeeding years there would have been lost to Hamilton at least 200 children from this disease alone

2. Posture. A year or two ago I watched a parade of some thousands of school children on Empire Day and was greatly impressed with the lack of smartness in their appearance and marching. I began to pay special attention to the postural

condition of these children and found that a very large percentage (I reported 90 per cent) had round or drooping shoulders. This was challenged by some local authorities and the matter received some newspaper publicity. Parents, teachers, inspectors, and physical instructors immediately became interested and so much emphasis has been put upon this phase of our work during the past year that it is much more difficult now to find a round-shouldered boy or girl among those who come up for their physical examination. If this interest only continues it is bound to have a very beneficial effect as the years go by.

3. Auxiliary Work.

- a. Retarded Children Seven years ago, there was one small auxiliary class of ten pupils for retarded children. Today there are thirteen (ten Junior and three Senior) with an enrollment of over 200 pupils.
- b. Sight Preservation In 1928 we had no special provision for pupils with bad eye-sight. Today we have a special sight-saving class of 16 pupils, with a specially qualified teacher. During the last seven years 956 needy children have been supplied with glasses through the Board.
- c. Hearing and Speech Defects. Whereas in 1922 no special provision was made for these pupils we now have a specially qualified teacher giving instruction in lip-reading and speech disorders. Last year 23 were instructed in lip-reading and 163 were in the speech correction classes.
- d. During these seven years surveys have been made and special records kept of all choreics, goiters, epileptics, crippled children, heart disorders, chest conditions and the malnourished and special provision has been made where necessary for their care and education. In 1928 fifty-one children unable to attend school were taught in their own homes by itinerant teachers. During the winter months nutritional clinics are held for under-nourished or malnourished children and extra milk is supplied to those unable to pay. Crippled children, unable to provide for their own treatment, are referred to the appropriate clinics or service clubs.

Who can estimate the value of these Auxiliary Classes to pupils in Senior Grades? There graduated from our sight-saving, lip-reading

and itinerant classes this year pupils who could not possibly have reached these grades without the assistance afforded by these special facilities, and how can we estimate the value of the more abundant life that has come to these children through these services?

- 4 Cardiac Cases. A physician who has medical supervision of a large factory employing hundreds of young women stopped me on the street recently and said, "I have been wanting to speak to you for some time on my experience in our factory. Seven years ago I employed most of my time in making out history sheets of employees with various forms of heart disease. Today I rarely see a case" Whether this is a common experience or not, I do not know, but in any case should not the school medical service in its pursuit of the diseased tonsil and tooth, in its care for the malnourished, in its discovery and guidance of incipient cardiac cases, in its fight against contagion, receive at least part of the credit? Evidently this physician thought so.
5. Just before the close of the school term I had the temerity to send out a questionnaire to the principals and inspectors of our Public Schools, contrasting conditions today with those of eight or ten years ago. Seventeen replied as follows:
 - (a) Are the pupils in the Senior Grades more free from physical defects? Yes—10. No—3. Doubtful—4.
 - (b) Is there more attention paid to personal hygiene by these pupils? Yes—12. No—2. Doubtful—3.
 - (c) Is more interest taken by the parents in the health of their children? Yes—14. No—1. Doubtful—2
 - (d) Are parents more willing to cooperate in health matters? Yes—13. No—1. Doubtful—3.
 - (e) Have parents and children a better understanding of the principles underlying the health habit program? Yes—13 No—1. Doubtful—3.
 - (f) Has the Trustees Board a better understanding of the value of a Health Program in the schools? Yes—10. Doubtful—7.
 - (g) Are teachers more keenly alive to the value of a continuous and consistent health program in the schools? Yes—10 No—3. Doubtful—4.

One of our most conservative inspectors remarked, "A wonderful advance has been made in school health work in the last ten years."

When, in addition, consideration is given to the improvements in lighting, ventilation, playground accommodation, and sanitary conveniences that are gradually being brought about, at least partially through the efforts of the school health staff, I think that it is a fair conclusion to state that from every angle the evidence is greatly to the advantage of the real value of the Present School Health Program in Primary Schools. However, we have yet a long way to go. Six years ago statistics showed that 75 per cent of all children examined in schools had one or more defects. Today this has been reduced to about 60 per cent, depending upon the standard used, so that no one can doubt there is much room for improvement. To this end I would strongly recommend:

That a reliable standard for health evaluation be established
That along with the system of academic promotion from one grade to another there be established some form of Health Examination which the pupil must pass before being allowed his standing.

That a vocational officer be appointed to supervise the activities of those under-privileged children who graduate from the public schools and find difficulty in adjusting themselves to community life. Too frequently, these children from lack of advice and supervision, fail to adjust themselves to industrial life. Wandering from one job to another, they finally drift into idleness and frequently into crime. A little supervision and advice at the right time would keep many of these exceptional cases in the way of self-support and self-respect and at the same time protect the community from a large percentage of its present crime. During the last year we have established a working relationship with the Secretaries of the Big Brother and Big Sister Associations in our city to this end.

TRAINING OF SCHOOL HEALTH WORKERS

SVEN LOKRANTZ, M D

Medical Director, Los Angeles City Schools

FRANCE and Sweden were the first nations to undertake school health work, but school physicians in the modern sense of the word were not placed on school staffs until 1868

School Health Inspection was organized in 1874 in Brussels, in 1896 in Germany, and in 1901 Great Britain started the employment of school nurses. Boston was the first city of the United States to inaugurate medical inspection for contagious diseases—then came Chicago, Philadelphia and New York. The first school nurses were employed in New York in 1902 and the first school law relating to the qualifications of medical inspectors was passed in Connecticut in 1899.

In the United States today there is a growing consciousness of community responsibility for the health of childhood yet practice is trailing far behind existing knowledge. In the United States we have spent hundreds of dollars each year for the education of each child, yet we are spending only a little more than one dollar for each child's health supervision. This fact is very distressing, realizing that the health of the child is far more important than its education. The old Greeks and Romans in the days of their glory spent half their money on the education of their youths and half on their health supervision. President Hoover in his inaugural address made a strong statement concerning the health work in the schools, thus bringing the attention of the leading citizens of our country to the importance of this problem.

As this health consciousness becomes a part of the American people, more attention will be directed toward the education and training of school health workers. At the present time there is nowhere any specific standard requirement for these very important workers supervising the health of our children.

School Health Workers may be divided into five large groups, namely: (1) school physicians; (2) school nurses; (3) teachers of corrective physical education, physical education and nutrition; (4) school dentists; and (5) technicians.

The requirements of the State of California for the employment of the school physicians are: that they hold a physician's and surgeon's license in the State and a Health and Development Credential which is issued by the State Board of Education (a credential which is issued on evidence of one year's successful professional experience).

The work of the school physician is as much a specialty as is any branch of medicine. Ideally the school doctor should be thoroughly familiar with the specialty of pediatrics and orthopedics, but he should also have a solid foundation in the following important branches of medicine: he should be well acquainted with contagious diseases and their control; he should be able to diagnose skin diseases and know something about their eradication; he should have a knowledge of proper school sanitation so that he may be sufficiently informed on the problems of ventilation and other sanitation matters to instruct principals and teachers. Lighting is a sanitation problem which requires a special knowledge in the usage of the Foot Candle Meter. In regard to water supply, drinking fountains, toilet facilities, sewerage, bathing facilities, cooking and dining facilities, wardrobe accommodations, garbage and waste disposal, seating, and animal pests, the school physician's training should be such that his opinion would be accepted as final by school authorities.

The school doctor must have a fundamental knowledge of eye, ear, nose and throat conditions, conditions of the teeth, malnutrition, nervous disorders, orthopedic defects and postural defects. He should be a specialist in the recognition of correctable conditions including orthopedic conditions. The school physician should not have to ask a physical training teacher to explain the best corrective exercises for flat feet or to differentiate between structural and postural kyphosis. Such ignorance on the part of the school doctor can only bring discredit to the profession.

One of the most important branches of medicine that school physicians should be especially acquainted with is the diagnosis of heart diseases and lung conditions among children. A great many mistakes are made not only by school physicians but also by private practicing physicians in diagnosing heart conditions among children. Very often a child will inform the school physician that the private doctor says that there is nothing the matter with his heart. Such divergences of

opinion occur very often and the remedy is that the school physician must keep up his knowledge in the advancement and study of medicine. This divergency of opinion between the private and school physician does not always mean that the school physician is wrong.

The working child is a special problem. Training and proper health supervision of such a child is vital for its future

The physician should have an intimate knowledge of teachers' needs pertaining to health supervision. He should understand the numerous health problems for the school athletes. It is important that the school physician have some clerical experience and be exceptionally neat and orderly in keeping records, as his statistics are read by many and are of the greatest importance to the school authorities.

One of the handicaps of the school physician's work is that it very often becomes mechanical. This must never happen because the child will suffer from the consequences. All physicians working among school children should be given opportunity for special study so as to foster an interest in their routine work. The school physician should be encouraged to read papers before Medical Societies about his work. He should be paid an adequate salary and be given an opportunity to practice medicine in addition, so that he will be recruited from the very best that the medical profession can offer.

In the past public health physicians and school physicians have not been accepted as they should be by the general profession at large. With better salaries given them and with higher requirements established, this condition will be remedied.

At the present time there are no definite courses given for school physicians in Southern California with exception of discussions at monthly staff meetings and readings of monographs and outlines edited by Sven Lokrantz, M.D., which are as follows: "Quarantine Rules and Regulations"; "Health Supervision of Kindergarten Children"; "Duties of School Physicians and School Nurses"; "What Every Principal and Teacher Should Know About Management of School Children with Heart Disease"; "What Every Principal and Teacher Should Know About Conservation of Eyesight of School Children"; "Outline of School Nutrition Classes"; "What is School Sanitation?"; "School Psychiatry"; "Open Air Sun Rooms"; and "Corrective Physical Education." In Los Angeles, school physicians

are allowed to take part in the meetings of the Los Angeles School Heart Board and the Los Angeles School Chest Board.

The school physician is not only a physician; he must also be a teacher of health education in order that his work shall be successfully accomplished.

Requirements for a school nurse in California—particularly school medical inspection—are that she be a registered nurse and hold a Health and Development Credential and have some experience in public health work. Every nurse before she is employed as a school nurse should have practical field experience in school health work and she should also have the training required to become a Public Health Nurse. A nurse coming directly out of training school is not fitted for school health work without further training. She should have a fundamental knowledge of contagious diseases, skin diseases, conditions of the eye, ear, nose and throat and knowledge of malnutrition in children. She should have some knowledge of school sanitation. Her knowledge should include corrective physical education and she should be able to recognize orthopedic conditions. She should be able to teach health. She should have a knowledge of social service, oral hygiene, first aid, and she should have clerical qualifications.

Corrective teachers in the public schools are not employed as extensively in some states as in others. Los Angeles employs over one hundred and forty teachers whose work is confined to Corrective Physical Education. They deal with the children who have certain defects where exercises and general hygiene are the methods used for correction. Corrective teachers must be graduates of teachers' training institutions, fulfilling the State Teachers Conditional requirements. They should have knowledge of the following subjects. Formal Gymnastics; Practical Work in Corrective Gymnastics; Free Floor Corrective Schedules—especially applied to back conditions, foot conditions, nutritional conditions and paralytic conditions; Clinic Experience; Massage and Fundamental Orthopedics; Anatomy; Physiology; Pathology; Theory of Corrective Gymnastics; Organization of Nutrition Classes; Recognition of Corrective Cases.

Under the classification of teachers we have the physical education teachers and hygiene teachers. The physical education teachers in most States are educated men and women whose general training is

very good. I feel, however, that their practical training in formal gymnastics and practice teaching in group corrective gymnastics is sadly lacking throughout the country.

As to nutrition teachers, those teachers must be graduates of teachers' training institutions and should have a thorough knowledge of signs and symptoms of malnutrition, corrective physical education, the means of correcting these conditions, the fundamentals of dietetics and a workable understanding of the growth and development of the child.

The work of the school dentist is a special branch of dentistry and requires special qualifications which are not obligatory anywhere in the States. A special knowledge of Child Dentistry could not at the present time be required but would be an ideal goal toward which to work.

Laboratory Technicians and Social Workers employed by School Health Departments may pursue their course either through Public Health Agencies or private schools.

If adequate salaries are paid, the following courses should be required of all school health workers: A course in Health Supervision and Medical Inspection for physicians, to be given by local universities; a special course in Health Supervision for school nurses, to be given by local universities; a course for Physical Education Teachers to fit them to be Corrective Teachers; a special course in Child Dentistry by local dental colleges; Laboratory and Social Service Training for health workers to be given by Public Health Agencies or private schools.

The day has come when school health work is now a recognized specialty. Preventive medicine is coming to the forefront as it has never before. The school health workers have secured the respect of the community to a greater extent. The private physicians must sooner or later realize that they have to cooperate with and support school physicians and their associates in their health work for a stronger race. If they do not, sooner or later this type of work will be solely directed by laymen, which would be a very unfortunate condition. Clinics would be established, not only for the poor, but also for children of the well-to-do. At the present time there is a lack of school clinics throughout the country. Not only the very poor but the needy should

be taken care of by the school physicians in clinics supported by Boards of Education.

The School Health Worker has a great responsibility. He should have a very unselfish point of view and consider the interest of the child first and last.

With better training of our school health workers, we can look forward to better and greater results which means a stronger and healthier race in this country.

ABSENCE RECORDS OF SCHOOL SICKNESS REPORT OF THE COMMITTEE

DON W. GUDAKUNST, M.D.

Director, School Health Service, Health Department, Detroit

YOUR committee feels its inadequacy to properly handle this subject. Due to the diversification in types of records kept, interpretations placed on common terms, and methods of compilation used by various workers, no report of the situation as it exists today can be given by this committee.

It is further felt that the importance of this subject is so great that it should receive careful and immediate study by an organization properly staffed and financed for this purpose.

Until a fuller understanding and appreciation of the causes of absenteeism are known, there will be much mismanagement and misdirection of effort in health education work in our school systems.

The economic aspect of the problem warrants the most careful consideration. The repetition of grades in school, produced by absenteeism from sickness, undoubtedly assumes a tremendously large financial significance. A study of the cost as well as the causes of morbidity of school children might, therefore, well be considered.

Your committee, therefore, expresses the hope that this problem will be made one for study by a suitably equipped group or organization where adequate time and effort can be given to such an all important subject.

SCHOOL HEALTH WORK — HOW IT MAY BE IMPROVED

JOHN L C GOFFIN, M D

Associate Health Supervisor, Los Angeles City Schools

THE physician's work in the public schools has not enjoyed the recognition its importance deserves, either by the public or the medical profession. The chief reasons for this lack of recognition are a failure by boards of education and the public in general to fully realize the paramount importance of health and the failure of school physicians to organize and demand greater efficiency in their own ranks and a better economic status for themselves.

It is self-evident that this unsatisfactory situation cannot continue. Unless school physicians themselves take the lead in improving the quality of their services and demanding adequate compensation, they will find themselves increasingly relegated to the ranks of underpaid routinists with the reins in the hands of outsiders.

The school physician is, or should be, a highly trained specialist. In addition to the best medical training he should have a thorough and practical knowledge of the defects and diseases of children and a reasonably complete acquaintance with the peculiar problems of preventive medicine as applied to public school administration. He should be an educator as well as a physician. He should so love his work that he regards it not merely as a passing phase of his education or as a stepping-stone to a lucrative practice, but as a dignified profession in itself, one worthy of his best efforts and lifelong adherence.

If he carries on a private practice it should be secondary in importance, not pursued with the idea of increased income primarily in mind or in the hope of building a large practice. His best thought and the major portion of his time should be devoted to his chosen profession.

If these conditions are to be adequately met, professional and economic incentives must be provided. Professionally the school physician must be assured a steady and progressive growth, economically he must be rewarded commensurately with his knowledge and skill. I can see no valid reason why the specialty of school health cannot be

made as attractive professionally as any other specialty in medicine. Under the present organization a very large amount of routine work is required and too little time is allowed for research. There is very little opportunity for keeping children under close observation for a long period of time. To the therapeutically-minded there is practically no opportunity for medical treatment in the strict sense of the word.

Most of these defects can be overcome. Better trained teachers and social service workers can relieve the physician of much of the routine and give him more time for constructive research. Diagnostic centers with a complete system of records will provide facilities for accurate scientific work and continuous observation. Perhaps a rotating service in the clinics would provide the therapeutically-inclined with opportunities in that particular field. If to these facilities are added medical papers and periodic attendance on hospital clinics there is no reason why the school physician cannot keep abreast with, even ahead of, the average physician, professionally.

But in order to meet the requirements for specialized training and devote himself whole-heartedly to his profession the school physician must be freed of monetary worries and not tempted to eke out his income by practice. There is no question that school physicians as a class are shockingly underpaid. It is contended that public servants have always been underpaid and always will be; that he who refuses the hazards of private enterprise must be satisfied with lesser rewards. Doubtless this is in a measure true; but it does not invalidate the contention that the school physician is less well compensated than other public servants of equal or lesser educational attainments. A questionnaire was recently submitted to the school health departments of forty different cities. Fifteen of these departments employ full-time men. The salaries in these fifteen cities range from \$1100 to \$3800 or an average yearly salary of \$2157 or \$175 a month. And these are maximum salaries. The part-time physicians in the other cities are paid in about the same proportion.

Does it not seem fair and equitable that the school physicians in any particular school system should receive as high a salary as the high school principals in that system? What are the facts? I can speak only for my own city, Los Angeles. School physicians there receive \$3040 per year, or \$304 per month for ten months. School

principals in that city are paid on the basis of the school month. The school month consists of twenty school days. Elementary school principals receive from \$260 to \$390 per school month. Junior high school principals receive \$465 per school month. Junior high school vice-principals receive \$365. High school principals receive from \$420 to \$540. And high school vice-principals receive from \$340 to \$430 per school month. Thus even the elementary school principals of the higher grade have a higher salary rating than the school physician.

There are two reasons why this condition of affairs exists. First because general education is still regarded as more important than health education; and second because lay teachers, relying upon strength of numbers and highly efficient organization are able to demand better compensation.

Must the health department forever lag behind the other departments in our educational system? Health supervision and health education are no longer experiments. They have fully justified the outlay of time, energy and money spent upon them. It is high time that our health departments take a long step forward in the procession. They can do that only by improving the quality of their service. One of the surest ways to improve its quality is to demand better trained men; and it is manifestly impossible to get better trained men of the right type without paying them adequately.

There is evidence on every hand that these changes are coming. If we do nothing about them they will be forced upon us. It is much to be preferred that we ourselves take the initiative in recommending them; first because we, better than anyone else, know our own needs and limitations; second because it behooves us to be sure that the program to be adopted will be really a progressive move and one that will substantially advance the cause of school health work. The American Association of School Physicians, with the aid of that much older and more powerful organization, The American Public Health Association, is confronted by an opportunity to initiate a movement of great significance.

I therefore submit the following resolutions:

WHEREAS, School physicians as a class have not heretofore been adequately prepared for the work which our complex educational systems now demand, and

WHEREAS, School physicians have not heretofore been paid a salary sufficient to justify this additional training and to enable them to devote their full time and best efforts to this work, and

WHEREAS, It has become necessary to take definite steps to improve this situation,

Resolved, That the American Public Health Association and the American Association of School Physicians in convention assembled do recommend consideration of, and action upon, by the various states, the following minimum requirements for school physician applicants:

1. Graduation from an acceptable medical school, one year of acceptable internship and a license to practice medicine in the state.
2. Six semester hours of graduate training in medical subjects relating to school health work
3. Six semester hours in a school of education of work embodying the principles of health education and the organization and administration of same.
4. This twelve hours of graduate work must be completed within two years after certification by the state board of education.

And that they further recommend:

1. The establishment of a salary rating equivalent to that now granted the high school principals in their respective localities.
2. That this salary be subject to automatic increase according to length of service.
3. And that it be subject also to an increase commensurate with educational merit and progressive professional development.

A PRACTICAL PROGRAM FOR SCHOOL HEALTH IN SECONDARY SCHOOLS

CHARLES H. KEENE, M.D.

*Professor of Hygiene, University of Buffalo,
Director, Summer School Courses in Physical Education, Harvard University*

MOST commonly, secondary schools are either the upper four grades of the twelve year public school course, or the upper six grades. In the latter case, these grades are usually divided into a three year junior high school and a three year senior high school. As the six year secondary school organization is increasingly prevalent, we shall discuss this program from that point of view.

More emphasis is needed upon the health factor in high schools. The number of pupils in them has increased enormously in the last ten years, in most communities the number of high school pupils in that time has doubled. In many places it has quadrupled. This has meant an increase in the number of years the average child spends in school.

The complexity of the program has made necessary a considerable addition to the length of the school day. Frequently the buildings are over-crowded. This over-crowding, the large number of courses offered, the increased length of the school day, and the large amount of social activities the schools have taken upon themselves have increased enormously the rush, excitement, and strain of high school life.

In addition, the equipment used has become very complicated, and much of it, particularly that used in the physical education program, needs intensive supervision of its sanitary condition.

In discussing the teaching, administration, or supervision of any school program, three factors must be kept in mind, first, who are we going to teach, second, what are we going to teach, third, how are we going to teach it? Who, what, how, become basic considerations.

The "who" are adolescent boys and girls ranging in age from eleven to twenty-two years, most of them, however, fall in the age group thirteen to nineteen years. These are mostly pupils who have recently gone through the pubertal change. They are exhibiting the

characteristics of early adolescence; intense interest and enthusiasm, excitability, argumentativeness, and an enormous interest in sex matters. On the physical side they are going or recently have gone through a very rapid increase in stature and in the size of the vital organs, particularly the heart. These things mean great danger of strain, mentally and physically. School programs should be kept simple, and any physical contests must be kept well within the power of the enlarged heart which has not yet acquired endurance.

The "whats" make up our program; sanitation of buildings and the provision of factors for health activities; a hygienic arrangement of the school program as to hours and studies; health training and instruction suited to the age, needs, and growing responsibilities of adolescents; a physical education program which shall create both desire and opportunity for a sufficient amount of the right kind of physical activity daily, given under suitable conditions; a health supervision, a coordinating force, detecting and removing physical handicaps, protecting from communicable disease, preventing mental or physical overstrain, and guiding into healthful channels the activities of classroom teachers and special teachers of health and physical activities, including athletic sports and competitions.

The "how" is dependent upon but just as important as the "who" and the "what." The health factors in the sanitation of the school plant not only include such general matters as heating and ventilating, lighting, and eye conservation, seating, and toilet facilities, but special provisions (and the care of these) which are essential if an adequate health program is to function. These are adequate gymnasiums with such accessories as locker and shower facilities; swimming pools with similar adjuncts; a cleanly administered cafeteria providing a suitable diet; an auditorium, and a health room for the care of emergencies and as a work shop for physicians, nurses, and the dental staff.

The school day is made safe only by a hygienic arrangement of the school program. Within the last twenty years, almost everywhere, the length of the secondary school day has been increased from four and one-half or five hours up to six or seven hours. This frequently means a school day beginning at eight-thirty in the morning and continuing until three in the afternoon, with approximately forty minutes allow-

ance for luncheon in the school cafeteria. In most cases the length of the class period is from forty-five to sixty minutes. Between periods, pupils move from one classroom to another. This is a desirable change, as it gives relief from sitting, quietness, and discipline. Fortunately, the variety of subjects offered gives change from semester to semester and from year to year. The introduction of physical education into secondary schools has come very opportunely to give relief during the longer school day. Leading authorities on education now maintain that in the high school program there should be provision for at least one period per day for health and physical activities, four of these to be used for physical activities, the fifth for health training and instruction, commonly designated hygiene.¹

This health training and instruction has as its aims, the establishment of good health habits; enough theoretical instruction so that pupils may know why good habits relating to cleanliness, fresh air and sunshine, sleep, food, play and exercise, and the avoidance of infections and of communicable disease are desirable, the instilling of ideals concerning health and physical fitness; and the building of proper attitudes concerning the responsibility of the individual, not only for his own health but for the health of family, school, and community.

Great progress has been made recently in health training.² We are approaching our goal of teaching health rather than merely teaching about health. Individual health depends largely on education. Health training and instruction, if it is to be successful, must be graded so that its content may be suited to the age and environment of the pupil. Its first aim is to establish right habits. To be successful, all departments in a secondary school should contribute to the correlation of health teaching and activities with such other school factors as English, History, Chemistry, Physics, Biology, Art, and the manual trades. Correlation with the health phases of community life is important. Field trips to dairies, markets, bakeries, factories, mills, shipyards, and other industries are important if pupils are to get a real idea of the health factors in community life and work.

One hour per week throughout the high school career should be allotted to health training and instruction. This time allotment is not sufficient, however, unless there is this definite correlation of other

school subjects with the health training program. Credit for work done should be granted in this subject just as much as in English, the classics, or mathematics.

Mental hygiene must be emphasized, cheerful home and school surroundings are essential. A nagging, waspish teacher, a scolding mother, or an irritable father may do serious harm. At every cost, we must foster this unfolding mental and physical life. Control and guidance of this phase of development, evidenced by rapid physical growth, expanding, searching intellect, quickened emotional life and desire for society and its excitements, have a marked effect in forming and deepening the moral and spiritual sides of adolescents. These problems are so complex that it is essential that a clinical psychologist and psychiatrist be employed by the Board of Education.

Our major program should be not to give information concerning disease, but to build and inform as to health. Not only must we inform concerning the health of the individual, but concerning that of the home and of industry. Closely allied to this is instruction concerning sex hygiene, "In the secondary schools this teaching can be done very effectively through the regular hygiene classes, and through correlation with other subjects, in the program of studies. The school physician, the school nurse, and the instructor in physical education have peculiar opportunities to accomplish very beneficial results. A close alignment is necessary, also, with the various sciences, particularly with biology."³ So far as possible such instruction should be given to individuals rather than to groups. A section on tuberculosis, and one each on narcotics and drugs, on tobacco, and on alcohol are absolutely necessary, and in many states are required by law.

A varied and intensive program in physical education is an essential health element. In it should be included all the physical activities which it is possible properly to teach. Marching, calisthenics, gymnasium exercises on apparatus, story plays and song plays, folk and aesthetic dancing, and a multiplicity of team games and athletics should be included. Special effort should be made to give each pupil definite instructions in recreational games so that he may leave the secondary school prepared to participate in at least two forms of such games, safely and with pleasure. These should be games which require

little time or space, are readily adapted to congested city districts as well as rural neighborhoods, that can be played by from two to four contestants, that do not require long drill and training in team games, and that can be modified to the individual's power and endurance. Lawn (and paddle) tennis, squash, handball, boxing, wrestling, swimming, skating, and volley ball are the most useful and adaptable of these games.

The factors used in physical education require special and intensive sanitary supervision. Lockers, shower baths, and swimming pools all may spread disease if pupils and premises are not adequately supervised and cared for. With adequate supervision any of these may be made absolutely sanitarily safe.

On the more distinctly medical side, that phase of the school program which I think of as health supervision, we find the keystone of the whole program. Its aim is prevention rather than mere diagnosis or even treatment. Its content includes the control of communicable disease by means of frequent sanitary and pupil inspection, and intensive cooperation with teacher, pupil, and family. Included in this are investigation as to vaccinations, required by law in most states, the presence of skin disease, particularly the ring worm of the feet which is so prevalent where gymnasium accessories are not adequately cared for, and repeated individual and classroom inspection for the arrest of communicable systemic diseases.

A thorough annual physical examination should be required. During and following this, not only the removal of physical defects but the importance of health habits and their possibilities should be emphasized to pupil, teacher, and parent. In these examinations, school physician, school nurse, dentist, dental hygienist, and psychologist should participate.

Health supervision should have a much more active and controlling part in the physical education section of the health program, than it usually does. The advice of the school physician should be a controlling factor as to the amount and kind of activities in which pupils may participate. As physicians, most of us have erred in being too free to excuse physically handicapped pupils from required programs in physical education. I cannot emphasize too heartily the fact that, for

practically any pupil who is physically fit to be in school at all, there is some phase of the school program in physical education in which he may safely and profitably participate. What this should be, however, the school physician should decide, basing his opinion on the needs and abilities of the individual, upon an intensive study of the various elements in the physical education program, and upon the way in which those are handled and supervised.

No pupil should be allowed to participate in such severe team games as football and basketball, nor in such strenuous activities as competitive rowing or swimming or track athletics, unless the pupil is examined and pronounced fit by the school physician immediately preceding the season of the particular sport.

For the sanitary condition of gymnasium, lockers, showers, swimming pools, and the like the school physician should hold himself more directly responsible than he now does.

In the hygiene teaching phase of the program, the school physician should not only give advice to nurses, teachers, or specialists giving instructions in this subject, but there are certain phases of it which he might well teach himself.

Health supervision, too, includes very careful supervision of the sanitary conditions of the cafeteria, its kitchen, its preparers and servers of food, and of the type and amount of diet offered.

These things cannot be done without adequate properly trained personnel. A school physician should be assigned to a high school on the basis of at least one hour of time each school day for each two thousand pupils enrolled, one school nurse on the basis of one hour each school day for each one thousand pupils enrolled. The nurse not only assists the physician in his efforts to control communicable disease and is present at all physical examinations of girls, but is a very definite help in taking care of those who may be acutely ill during school hours, or who meet with accidents in any part of the school program. She, as well as the physician, should hold frequent conferences with pupils, teachers and parents concerning the physical condition of individual pupils. The dental staff, including a dentist and a dental hygienist, are used largely for advisory purposes among pupils of high school age. If the dental program is adequately organized and carried on in the

lower six grades, there is little function for these specialists in the upper six.

The physical education program needs either one or two very versatile instructors in the smaller high schools, or a considerable number of more specialized instructors in the larger high schools. Roughly they have to cover such activities as gymnasium work, swimming, intramural sports, and competitive team games and athletics of inter-scholastic type. There should be men teachers for the boys, and women teachers for the girls; one for each 300 pupils.

In a school having a cafeteria, expert advice and administration by a trained dietitian is an essential health factor.

In health training and instruction, the teaching may be done by various trained persons, such as a teacher in biology, one in home economics, or by the physical education instructors. Frequently these latter are the only persons on the school staff, except the school physician and the school nurse, who have enough knowledge of basic anatomical and physiological facts so that they may teach health training and instruction wisely or even safely. In a large high school the tendency toward departmental organization frequently results in the employment of a special teacher, who teaches nothing but hygiene.

In these factors, all personalities working together make for a real program to guide, guard, and build the health of the adolescent. He peculiarly needs such protection. While many schools now have most of these factors, they are usually independently handled and have little correlation or cooperation. Sometimes distinct antagonism between these personalities exists. For success, intensive correlation and cooperation, preferably under some one on the school faculty, who shall act as head of health and physical education and control all of these factors, is essential to safety and progress.

1. Sixth Year Book, p. 460. Department of Superintendence, National Education Association, Washington, D. C.

2. Course of Study in School Health, Hygiene and Physiology, Grades IX-XII, State Department of Public Instruction, Harrisburg, Penna.

3. Sixth Year Book, p. 475. Department of Superintendence, National Education Association, Washington, D. C.

SUGGESTED MEASURES FOR INCREASING THE CO-OPERATION BETWEEN THE FAMILY PHYSICIAN, PARENT, AND SCHOOL HEALTH STAFF

MARY E CRAWFORD, M.D.

Chief School Medical Officer, Winnipeg, Manitoba

THE object of School Medical Inspection is not only to discover existing defects in the school children but to try by every possible means to ensure treatment of these to improve or cure. The success of any system, then, depends entirely upon the physicians in private or hospital practice in any locality. It is therefore necessary that the closest possible cooperation exist among the three factors involved: the parent, the family physician, and the school health staff. As between the school and the family physician, it is most desirable that the school physician be an individual acceptable to those in private practice, and that he should use every endeavor to keep them as well as the lay community interested in his work.

The first step is that the school physician join, and actively participate in his local Medical Society, a suitable place for his activities being the Public Health Committee of that body. He can then bring before his fellow members any problems that may arise in the course of his work, and which relate to private practice, for discussion and harmonious solution. He will be able to impress his point of view of any case, which is that it be dealt with for the good of the community as a whole rather than from the narrower outlook of the family physician, who may look at it only in relation to the satisfaction of his patient alone.

The school physician can bring to the Society reports of work accomplished, especially stressing the number of defects brought to light by the school work and treated with improvement or cure by the family physician. Many points of friction can be smoothed out by amicable adjustment, which, left unexplained or uncorrected, might result in antagonism and disparagement of the work.

As a member of the Society he will become personally known to his colleagues, and they will feel that he is as keen to uphold the

strictest ethical standards of the profession as they themselves. This is most necessary in the case of the school physician, especially if on part time, that he may not be under suspicion of trying to gain patients for himself, or of showing favor to some particular doctor. Truly he has to walk like the proverbial cat on the wall covered by broken bottles. The next step is to devise notification forms that are acceptable to the family physician and to the parents. Parents should be made to feel, by the courteous wording of the notification form, that there is no coercion intended but only a sincere desire on the part of the school physician to be of help. The advice of the family physician, or merely of a physician, is mentioned as being desirable. Until recently this is as far as most systems have gone.

Here may I digress a little and consider why the family physician has not been linked up more closely. School medical inspection began in Europe. France was the first country we hear of as making some enquiry into the subject in 1783. Later, after the Franco-Prussian war in 1870, when it was discovered how many soldiers were inefficient owing to physical defect, a more systematic attempt was made to examine school children to discover and remedy these defects before the age of conscription. In England in 1871 the Elementary Education Act for England and Wales was passed. This provided for the division of the whole country into School Districts, and the election by the rate-payers of a School Board in every district. These boards were empowered to compel the attendance of children at school, to levy school rates, and so forth. At the same time the Local Government Board was established which carried out the duties in connection with registration of births, marriages, and deaths, and all matters pertaining to public health. This provided the necessary machinery for State intervention in such matters and led up to the establishing later of School Medical Inspection in Great Britain in the late nineties. Until then the education of the poorer classes had been carried on, if at all, in Dame Schools, Church Schools of all denominations, and so forth. Private schools existed for the education of the richer people. The poor were medically cared for by Poor Law doctors, while the rich could afford their own physicians. When the schools became "National" or "Board Schools," they did not deplete the private

schools, as the well-to-do still sent their children to them and still of course consulted their family physicians. With the great influx of children to be educated it was found that terrible physical defects existed which were not being cared for by any agency; hence School Medical Inspection. The majority of these children having no family physician were referred to hospitals or dispensaries for treatment, and the family physician did not come into the picture.

On this side of the Atlantic, however, with a more democratic outlook, children of all classes attend our public schools, and the family physician immediately becomes concerned, and vitally so in the school health service. At first many were antagonistic, fearing an encroachment upon their private practice by the school doctor.

When School Medical Inspection was begun in New York all children were examined by the school doctors. Later, in 1915, a method was introduced whereby the school entrant could have a physical examination made by the family physician. A record blank for entering his findings was enclosed with a circular to the parents. This was returned to the school and such child did not receive any further examination from the school physician. Dr. Josephine Baker states as the reasons for this experiment that:

1. A large number of examinations might be given by the general practitioners of the city.
2. An increase in the total number of physical examinations made by both school doctors and family physicians.
3. Avoidance of the criticism by other physicians that the school doctors were interfering with their practice.
4. An opportunity to compare the physical findings in children examined by family physicians with those of school doctors, it being assumed that the conditions for the former examinations were better than those under which the latter were made.

Dr. Baker goes on to say:

In the school year 1915-16, a total of 94,462 children admitted to school for the first time, received physical examinations. Of these 15,616 or 16.5 per cent were examined by their family physicians. In the school year 1918-19, 122,541 children admitted to

school for the first time received examinations, and of this number 8,108, or 6.5 per cent, were examined by their family physicians. This decrease in the percentage of children examined by family physicians has continued until now the total number so examined is insignificant. This result would seem to indicate an increased confidence on the part of the public in the examinations conducted by the school doctors, and a possibly better understanding and cooperative spirit on the part of the medical profession

It is interesting to note in regard to reason number four, that in comparing the findings of physical defects by the family as opposed to those found by school physicians, results show that a large percentage more defects were found by the school than by the family physicians. The defects showing the widest divergence were:

	Family Physician	School Physician
Defective Vision	2.3	9.4
Defective Nasal Breathing. .	5.7	10.1
Defective Nutrition	5.7	14.2
Defective Teeth	19.5	65.2

In the case of nervous defects, however, the case is reversed, the family physicians reporting 2.6 as against .6 by the school physicians.

The conclusion arrived at by the experience referred to would seem to be that it is desirable to leave the discovery of defects to the school physician and the treatment to the family physician. To quote Dr. Baker again:

As a matter of record, the statistics of any community will show that a large number of children go to their family physician for treatment as a result of the physical examinations made at the school. And that in all probability few, if any, of these children would have been placed under the care of private physicians if attention had not been called by the school physician to the presence of such defects. In New York City careful studies made on this subject cover a period of several years, and show that 48 per cent of all children whose physical defects were treated, received the necessary medical or surgical care from private physicians.

The next step to be considered in securing treatment for defects from the family physician is to devise some means of direct communication between him and the school physician. The chief agent who links up the three people concerned is, of course, the school nurse, but

this is still not direct. Forms are in use in some centers which are sent directly from the school to the family physician. In Toronto their form reads as follows:

Date

Dr.

Dear Doctor:

I am instructed by Dr. Charles Hastings, Medical Officer of Health, to bring to your attention a school child by the name of living at and attending School, whose parents state that you are the family physician. Owing to the opportunity afforded us for the almost constant observation of this pupil by teacher, nurse, and finally by the school physician, the following apparently abnormal condition has been noted, and the parents advised to consult you. (Here follow three blank lines for the description of defect found)

If there is anything that the Department of Health can do to aid in follow-up, subsequent to your treatment, please telephone the District Office No. . . .

Yours truly,

., M.D.

District Medical Officer.

Such a form seems to leave nothing to be desired from the standpoint of diplomacy and shows the desire of the school physician to cooperate with the family physician. The school nurses, too, should welcome some such form as protecting them also against possible suspicion of trying to divert patients to a doctor of her own selection, or advising free treatment when there is a family physician.

In Winnipeg I use a form, which was first submitted to and approved by the Eye and Ear Section of our Medical Society, for the children attending the Sight Saving Classes. On the front is the child's identification, with space below for the eye specialist to enter diagnosis and present condition. Here also he puts his recommendations as to length of time to use the eyes, how often the eyes should be re-examined, and so forth. On the back of the card there are spaces for entering subsequent visits, the date and further recommendations. After each visit the card is forwarded to the oculist to be filled out. He returns it to my office. Duplicate cards in the school apprise the

teachers and nurse of the oculist's findings and act as a guide in directing the child's studies

The interest of the parent in having the child's defects corrected is usually sufficient to ensure its being done by some means or other; but it is still often enough neglected that it would seem that further effort on the part of the school physician is required. To this end he should be an active participant in the dissemination of health propaganda in his community. Through Health Leagues, by means of lectures both to individual organizations and over the radio, he should always be ready to do his bit towards educating the public along health lines.

Public opinion is slowly being educated up to the point of demanding for themselves and their children, a complete physical examination, at least annually, and not a superficial one at that. An examination which will include all technical analyses, X-ray findings, basal metabolic rate, and so forth, in short, the use of all known means to discover if the individual is normal or if incipient disease be present.

At least we hope to educate them in the near future to consult their family physician for an annual examination, as now they go to their dentist. Until that happy day the school physician, as yet the only state established agency which makes free physical examinations, must keep working along lines which will tend to make as close as possible the relations between himself, the family and the family physician. We are beginning to realize that the idea of our Chinese brethren is not so illogical as we may think, that the family physician should be paid only as long as the family keeps well, and that payment stops during illness.

This brings us finally to the consideration of the greatest obstacle which prevents the immediate remedying of defects found, the economic side of the question. The defect has been discovered. The parents have been notified. The family physician has been apprised of the situation. Nothing further happens. Suppose three children in one family have been found, one requiring tonsillectomy, the second requiring refraction and glasses, and the third with cardiac disease. An immediate outlay on the part of the parent is called for of \$50 to \$100. There may at that, still be an unpaid bill standing between the family and their physician. The parents feel that they simply cannot

incur further indebtedness, and the children go untreated. After due time has elapsed, the school nurse begins to urge treatment, but is faced with the economic problem of the family. What is she to do? The parents may ask for a recommendation for free treatment. This may mean that, if the family physician does not happen to be on the staff of any hospital, he loses his patient and the practice derived from the treatment of the defects. The family physician may be quite willing to retain his patients and to forego the fee. But why should he be the sufferer? Here we are at once on the ground of the great controversy, State Medicine, to be, or not to be? Opposition to State Medicine comes largely from the fear of the general practitioner of this very thing, the loss of practice through free treatment which removes his patient from his care. Some way will have to be found whereby the family physician can keep his patient, who also resents changing his medical advisor, and his fee too. The method would need to be one which could be subjected to the minimum of political interference, and which will avoid slipshod methods of treatment, such as may perforce be given by an overworked state appointed doctor.

Wiser heads than mine will have to solve the problem; but one method occurs to me as being a reasonable one. That is, that a State Fund be established which would be available to people in straitened circumstances, so that they could still retain their own physicians and pay him from the fund. More taxes! Yes, but not necessarily to be met by rate-payers only, but by a per capita tax, perhaps in the form of insurance.

Education given freely by the nation to its people is here. It will inevitably lead to free treatment of diseased children who are unable to profit by that education, as it has already brought free medical examination for discovery of defect. But in the doing of it, the integrity of the relationship between the family and its own physician must be maintained.

MEDICAL EXAMINATIONS OF CHILDREN LEADING TO SCHOOL CREDITS

FRANCIS E. HARRINGTON, M.D.

Commissioner of Health and Director of Hygiene, Minneapolis

A TREND in modern education is toward the recording of the evaluation of acquired knowledge by means of credits. Credits are awarded on the basis of attendance upon instruction and demonstrable accomplishments. Accomplishment is demonstration of the results achieved by research as manifest by activity and examinations. The result on the whole is the production or turning out from institutions of learning of a student with a well rounded mental development including personal initiative resulting in a successful intellectual preparation and fitting of the student to take his place in the ever changing society.

Curricula of today generally include the study of health under the title "Health Education." Health education as a subject is directed toward the awakening of the so-called health consciousness. It teaches positive health, personal hygiene, and the formation of proper health habits.

The completion of a course of study presumes the successful pursuit to a satisfactory completion of subjects constituting the course of study laid down. A student is required to obtain a passing grade as evidenced by satisfactory attendance and demonstrable accomplishments and the satisfaction of the demands is indicated by a score or marking constituting a credit or the fraction of a credit. Incomplete subjects for which adequate credits are not achieved must be repeated or some other subject mastered culminating in a final credit marking equal to the number of credits required to complete the course prescribed. In our grade or elementary schools the State has undertaken at the expense of the taxpayers to educate the youth of the community and before progress from grade to grade or from course of study to course of study is permitted definite accomplishments are required. The scholastic progress of the student from grade school to high school and from high school to university or college is a successive progress

on credits acquired. The awarding of a certificate of completion or diploma of graduation signifies certain established and definite accomplishments recognized both in the business as well as the educational field and connoting ability in direct proportion to the credits achieved. Thus, through a method of bookkeeping the scholastic accomplishments through the several years of educational progress a student's attainments may be certified.

So far our system of education has achieved only the progress and accomplishments of the scholastic successes without regard to the physical development and ability of the student.

Health supervision in our educational scheme today is limited to the investigation into the physical development and the recommendation for the correction of remedial handicaps. Health supervision is one of the factors in a general education that has long been recognized but is slowly taking its place among the important objects leading to a liberal education. Although a requirement in practically every outline of education medical supervision has not been accorded the importance that it deserves. A student who has accomplished a full course of study but who has failed to accomplish normal uninterrupted or unhandicapped physical development is not fully equipped to take his place and adequately fulfill the demands of the ever changing society of today. The mentally and intellectually equipped graduate from our institutions of learning unless equally equipped physically and physiologically to apply his intellectual accomplishments to the full limit of his attainments is only an incomplete product of our educational institutions. To produce for society the well rounded and efficient product the student must be able to render to the state in return for the years of education given him an accomplishment which requires ability to compete with others of like achievements and in order to do this a sound body must accompany a sound mind. The passing mark in successive grades for promotion and the final grade marks upon the completion of a subject constitute credit ratings and these credit ratings are acceptable for the advancement of students from high schools to higher institutions of learning. It is my belief and contention that no child, no matter what his grade mark in scholastic achievement may be, should be advanced from elementary to high school or from high school

to higher education, nor should he be issued a certificate of completion or diploma of graduation until he has successfully completed a satisfactory grade marking evaluated in credits for his physical and physiological development. The completion of any course of study as indicated by any form of certificate should indicate the physical ability of the student to carry on comparable with his intellectual ability to achieve. Until this is completed and the body and mind jointly are the elements of credit marking our students are not prepared to achieve their aim in life. This phase of health supervision has not been attempted and I now propose for your consideration the importance of correlating the physical with the mental.

I suggest the subject of health supervision as an accredited subject necessary to successfully complete a course of study leading to the proper credits for graduation. In order to accomplish this the leaders in the educational field must recognize the equal importance of good health with good learning. The student who is physically unable to put to the highest use his scholastic attainments is not a fully educated member of society. It therefore becomes necessary to guide the student through his school life by a periodic examination and the correction of departures from normal where such departures mitigate against the successful development of the body. It becomes necessary, therefore, to recognize physical development as one of the subjects constituting a course of study and to require the certification of standards of development from the physical standpoint comparable with those of the mental. To accomplish this two main factors are necessary. The first is the setting up of a method of examination for which a grading is established and the assignment of credits as in any other subjects, and secondly, the setting up of standards the attainment of which is necessary before the credit of success is awarded. No student should be issued a certificate of completion or diploma of graduation unless and until such student has successfully passed the examination of his general physical set up, the credits awarded for such a successful examination to be graded on the approach to the average normal.

To the first end I propose a record card upon which is entered the findings of the examiner at stated intervals during the school life of

the child. This record card is a record of evaluations. The examination of the student is made by a qualified physician who summarizes and evaluates on a grade or scale his findings based on a comparison with the average normal. The process to be pursued in Minneapolis in arriving at the value of physical and physiological development as outlined by the record card is the recording thereon of the acuity of vision and hearing as determined by the mechanical methods for these tests. The examining physician by means of an examination generally referred to as "screening" arrives at the status of the physical and physiological development of the child under the numerous headings shown on the record form according to the physician's judgment, taking into consideration such examination as he may apply. The value of the child is then placed in the proper column opposite the subject indicated. By adding the several scores so placed the grade mark is arrived at and evaluated in the same manner as would such an examination if conducted in any other curricula subjects. This constitutes a passing mark or a failure. This proposed examination is not a detailed diagnosis. A copy of this scoring is the subject of notification to the parent or guardian on a second form comparable with the first. It indicates that the student, if a passing mark is given, can reasonably pursue his subjects without unnecessary retardation and may be expected to acquire the full benefits of his mental training. If departures from normal constituting handicaps are so rated as to produce a final score below a passing mark it indicates that although the child may have achieved satisfactory or even exemplary grades in his mental subjects he is either working beyond reason to overcome retarding handicaps or will not successfully achieve full benefit in his course of study. It is the purpose in notifying parents to have the child examined more in detail by the physician of choice and have such departures from either the structure or function of the child corrected or remedied so that the score rating may be raised to a passing credit.

The results of these examinations should be given the same recognition on a student's report card as are the results of examinations in his scholastic subjects and parents should be first encouraged and later required through the best means at their disposal to bring the physical status of their child to the point of receiving a satisfactory credit on this subject before advancement is permitted.

It is hoped that eventually medical supervision will be accorded a definite place equal to other subjects on the curricula as laid down for courses of study. Logical progress in education requires the turning out of a well rounded student not only mentally but physically and to accomplish this medical supervision must be one subject upon which a passing mark be required before the completion of any course of study leading to graduation. It is to this end that this score card is presented.

It is by no means the intention in this method of scoring the child's physical development and progress to stigmatize or otherwise handicap a child who through mental attainments can achieve success in some particular phase of future activity. Great harm would be done if a student perfecting himself in some special line of study through which he could make a success in life, even though physically handicapped, should be prevented from accomplishing this end. A student who may make an utter failure in arithmetic or mathematics may be highly successful in the field of endeavor where the subject of figures is not important. So too must we bear in mind that children handicapped for one livelihood may be successful in another and this must be borne in mind in evaluating the student's physical well-being, having in mind full consideration of the ultimate aims of the particular student's educational trend.

Through the interest of the Superintendent of Schools of Minneapolis the Department of Hygiene, directing the medical supervision of the students, was permitted to introduce this form of medical record and it was enthusiastically received by the medical school inspectors. After a thorough study of this method of recording the medical examination of students this record form has been adopted as the standard medical record for the Minneapolis Public Schools. As subsequent examinations are made the correction of the existing errors in the physical and physiological economy of the child are noted and grade marks are assigned upon each such examination. It is hoped that eventually such scoring will be accepted for the purpose of promotion and graduation the same as are now required in other subjects of the school curriculum. Following is a description of the items on both these forms:

Pupil's Medical Record

The Pupil's Medical Record form gives pupil's name and address, school, sex, date of birth, birthplace, name of person responsible, relationship, number of children in family, history of diseases, successful vaccination (scar, when).

On the pupil's medical record space is provided for scoring. On this the following items are noted: school, date of examination and grade; the following items with their values are noted: Height, Weight, General Development and Nutrition (20): muscular tone, posture, anemia; Mouth, Nose and Throat (15): tonsils, adenoids, nasal obstructions; Chest (20): heart, lungs; Nervous System (5); Glands (5); Eyes (10): right eye, left eye, disease; Ears (10): right ear, left ear, disease; Health Protection (5); Health Habits (10); Handicapping Conditions (50); (physician's signature). (In a bracket opposite the last item a figure is placed not to exceed 50 which will represent an accumulation of deductions for handicapping conditions throughout the card. The figure so placed will be subtracted from the score, which will be the addition of all other figures.)

Dental Record

The Dental Record, kept on the same card, includes: Condition of Teeth: Original Examination, Date, Follow-up Examination, Date.

Report to Parents

The Report to Parents includes the foregoing items with a note signed by the Director of Hygiene which states:

A routine medical examination has been made of your child. The result of this examination is shown on the score herewith. This examination is not for the purpose of making a careful diagnosis. Gross departures from the normal only are shown. You should take this report with the child to your physician for a more thorough examination

THE PROGRESS OF HEARING TESTS IN THE PUBLIC SCHOOLS OF THE UNITED STATES

HARVEY FLETCHER, Ph.D.

*Director of Acoustical Research of the Bell Telephone Laboratory,
New York City*

IN 1919 when the American Federation of Organizations for the Hard of Hearing was organized, very few schools in this country were making systematic tests of the hearing of school children. Now there are more than 100 cities making such systematic hearing tests. The various health organizations have always realized the need of such tests, but it was not until the Federation made an intensive effort to solve this problem that suitable equipment was made available for testing large groups of children at a rate which is practicable.

In 1926 Doctor Fowler and I presented a paper before the American Medical Association entitled "Three Million Deafened School Children—Their Detection and Treatment." We have received some criticism from a few of the more conservative health workers for using such an extravagant title. It is evident that we chose it partly for propaganda purposes, for which it has served very well, since it has stimulated considerable interest in this problem among school officials and stirred some of them into action toward taking care of the deafened child in the schoolroom.

It is obvious that there is no definite differentiation between the deafened and those of normal hearing, since there are degrees of deafness from normal to totally deaf. The number that falls into the deafened class then depends entirely upon the hearing limit set for differentiating between the normal and abnormal hearing. Such a limit is necessarily arbitrary and can be ultimately fixed only by practical experience. While gaining this experience a tentative limit must be set. In terms of the new hearing units this limit has been set at 6 sensation units. The following will illustrate the meaning of this limit. Suppose a group of persons of varying degrees of acuity of hearing are placed in an open field in which there is no noise. If a sound source is brought toward them, those having normal hearing will

perceive it when it gets to a certain distance, D. A person having a hearing loss of 6 SU would then hear the sound when the source is brought up to a distance of one-half D. Those who could not hear until the source was brought closer than one-half D would be considered in the deafened class. These relations are true only when the source of sound and the listeners are in a perfectly quiet place and where there are no reflecting walls. Such an ideal place cannot be found, and approximations to it can only be found in some of the larger experimental laboratories. In most schoolrooms the noise is sufficient to cause a deafening effect of 15 or 20 SU and serious reflections occur when an open source is used. Consequently, in such a room any deafness less than about 20 SU cannot be detected by direct speech tests or by using any other open source of sound, and certainly would not be noticed by the teacher in her regular classwork.

By means of the phonograph-audiometer, the instrument developed by Bell Telephone Laboratories at the request of the American Federation of Organizations for the Hard of Hearing, hearing losses as small as 6 SU can be detected if the room is fairly quiet, for with this instrument the sound is delivered directly to the ear by a telephone receiver. By placing the receiver tightly over the ear the noise is reduced 15 or 20 SU. The reduction of noise reaching the ear depends upon how tightly the receiver fits. For this reason special attention should be given to adjusting the receivers on the children's ears and to finding a quiet room. However, it is evident that with such an instrument reflections from the room do not complicate the results. With this instrument 40 children can be tested at one time. Probably most of you are familiar with it, but for those who are not I will briefly describe it.

The "phono-audiometer," as it is popularly called, is a phonograph to which has been added telephone equipment. The record generates an electrical counterpart of the sound, and this is reproduced by as many as 40 telephone receivers distributed throughout the classroom. The speech sounds are thus heard by each child in only one ear at a time, so that the ears may be tested separately. In the record used on the phonograph, first a woman and then a man are reciting numbers in gradually decreasing loudness as though they were walking away from

the listeners. The children under test write the numbers they hear on a prepared record sheet, which can be corrected and the child's hearing thus graded. The audiometer has been calibrated by testing a large number of children having normal hearing. The reproduced numbers decrease, in 3 SU steps until the sound has been attenuated 30 SU. The intensities of the sound reaching the ear by means of this instrument are equivalent to those which would be obtained when a person speaks with the average intensity, first at a distance of 40 feet from the listener, and then walking away to a distance of 1200 feet, assuming, as mentioned above, that the speaker and listener are in a quiet place.

It is estimated that approximately one million children have now been tested with this instrument, and the results indicate that our first estimate was not very far wrong, although somewhat too high if we use the limit mentioned above. In some instances, however, a much larger percentage of hard of hearing children were found than would be expected. I am convinced that in most all of these cases it was principally due to testing in a noisy place. It is evident from what has been said that when the noise is sufficient to cause a deafening of more than 15 SU, the tests will indicate how well the receivers are adjusted on the children's ears rather than the degree of deafness which each one has. I fear that in too many cases the results do not indicate at all the children who are hard of hearing except those who are very hard of hearing. Although considerable stress has been placed upon this point, it is still not appreciated as it should be by those who are making the tests. Those making the tests frequently complain, however, that they cannot find a quiet place to make the tests. If a quiet room cannot be found it is useless to make the test. As a matter of fact it is worse than useless, because the results under such circumstances create a wrong impression. When the children after such tests are sent to an otologist for an examination and he finds that they are not hard of hearing it puts the audiometer in disrepute and discourages those trying to introduce such tests.

A questionnaire was sent to the various users of the audiometer throughout the country, and it may be interesting to summarize their experience regarding the difficulty of obtaining a quiet place for making

the test. Some suggested covering the ear not being tested. This might assist in preventing the child's attention being diverted momentarily, but we know that the amount of noise, usually encountered in a schoolroom, which goes into the ear not being used in the test will not reduce the ability to hear in the opposite ear. It is noise which leaks under the receiver and gets into the ear being tested which causes the trouble, so any auxiliary apparatus used to cover the free ear will produce little help. Some of those making the tests tried to locate the testing headquarters on the top floor of the school building. In this way the overhead noises are eliminated and the loudness of street noise reduced. In addition to selecting the most quiet place in the school, it is necessary in many cases to suspend noisy school activities while the tests are being made. In some schools this means the suspension of kindergarten, gymnasium, playground, and music room exercises. In one city they are considering building a sound-proof laboratory at a central place to which all the children will be taken by means of a bus. This would be an ideal way to make the test, but in most school districts I think it will be impractical. Let me repeat again that unless a quiet place can be obtained, it is useless to make the tests by any method which has yet been developed.

Another matter which has not received sufficient attention is the proper maintenance of the testing apparatus. To keep the telephone receivers in good condition the caps should be loosened and then tightened every morning before beginning the tests for the day. Especially is this true in the winter time, when the receiver will be subjected to large temperature changes. This change in temperature may produce a change in the efficiency of the telephone receiver which may be immediately rectified by the above procedure. It is a good plan to have a supply of receiver diaphragms on hand so that when a child dents a diaphragm by poking his pencil into it or by dropping the receiver, or by any other means, a replacement can be made immediately. At least once a month the receivers should be tested by a listening test, which is made as follows: A phonograph record which can be supplied upon request produces a complex tone at constant intensity. By using this record the sound from any two receivers can be directly compared by listening. If there is an obvious difference

in intensity the receiver should be investigated. If changing the diaphragm does not rectify the trouble it should be shipped back to the suppliers for repair.

The results of hearing tests indicate that if a large group of school children are tested from 4 per cent to 8 per cent of the children will fall into the deafened class when the limit of 6 SU is used. If a greater number than this is found one should be very critical first of the noise conditions under which he is testing, and second, of the apparatus being used. Of course, these figures hold only for large groups. From fewer tests the following tentative conclusions have been drawn. If the same group is tested periodically each year the same children will not fall into the deafened class. About one-third only will be the same children; one-third will be children whose hearing will fluctuate between the normal and the deafened class; and one-third will be those who fall into the deafened class but once. These variations are due to two causes, variations in the hearing ability of the children at different times, and variations in the apparatus and observational errors in making the tests. It is difficult to separate these two causes but I am convinced that when the tests are carefully done a large part of the variations are actually variations in the hearing. The fact that such variations exist indicates the need of periodic tests. It is the first two groups that need serious attention.

To show the variation of hearing in children, five charts have been prepared which show the results of careful audiometer tests made in our laboratories in a sound-proof booth on a child at six different times. It is evident from these charts that such variations do occur in such young children. Dr. Fowler's research work with children has shown that these marked variations in hearing are fundamental signs of varying pathology in the ear which needs attention.

In conclusion let me summarize the program which the American Federation of Organizations for the Hard of Hearing is recommending for school children.

1. Preliminary testing in classes (groups of 40) in a quiet classroom, with the phonograph-audiometer and questionnaire history, by a competent tester and an assistant.
2. Retest of the borderline cases (about one-fourth of the total) on the following day.

3. Tone range audiometer test of those remaining in the deafened class after such a retest
4. Careful otologic examination and diagnosis by a competent otologist.
5. Careful filing of the records, so that changes may be noted, and knowledge as to the detection of incipient cases and progress of promising cases gained.
6. Regular yearly testing of the whole school by the foregoing procedures.
- 7 The establishment of special clinics, probably as departments of our present hospitals, for studying and for handling difficult cases.
8. Special classes for lip-reading should be provided in each school during school hours for the deafened child, which should be conducted by teachers trained to impart this knowledge. (This is now being done very efficiently in several schools.)
9. Special schools for the deaf should be provided for those having a great hearing loss. The amount of deafness requiring this special care should be determined from experience, after the first method of teaching has been put into practice.

The American Federation of Organizations for the Hard of Hearing is striving to interest the nation in this vital matter. Many educational authorities are now seeing its importance and have a program to take care of the deafened children; others are getting ready for action, and it behooves all health workers to do their part in this hitherto neglected work of the conservation of hearing. It is in the young and only in the young that much can be accomplished.

MATERNAL AND FETAL MORTALITY

ANTENATAL—INTRANATAL—POSTNATAL CONDITIONS IN THE UNITED STATES

JOHN OSBORN POLAK, M.D

*Professor of Obstetrics and Gynecology, Long Island Hospital Medical School,
Brooklyn*

CHILD-BEARING in the United States with our existing type of civilization is a hazardous adventure and carries with it responsibilities, duties and dangers which are greater than the public seems to appreciate. Many of these dangers did not exist in the day of the primitive woman.

THE FACT—THE CAUSE—THE REMEDY

The Fact: It is still customary to speak of pregnancy and labor as physiological processes and so they were, in the primitive woman who married her kind, lived in the open, on a diet of fruits, vegetables, milk and fish, and kept up her muscle tone by physical labor and open air exercise and was protected from the infection and cross infection by religious rites and custom. In contrast, the civilized woman eats and drinks what she pleases, is the subject of diseases which produce immunities which always leave permanent organic pathology. She, therefore, many times enters upon her pregnancy as an impaired risk. Furthermore, her delivery is attended by either a skilled or an unskilled attendant. Many of the former are under the delusion that they can improve the mechanism of a most perfect physiological process by attempts to hasten the onset of labor, obliterate the pain of labor and expedite the second stage by drugs and such operative measures as elective version, low forceps, cervical and vaginal incisions or cesarean section. They thus increase tissue trauma and open avenues for infection by bacteria. Should the woman be attended by the unskilled, the parturient submits to repeated vaginal examinations made without due regard for clean technique and to the even greater dangers of unclean instruments, internal manipulation and cross infection

from the throats of those in contact. Statistical studies show that from 90 to 95 per cent of all labors will terminate spontaneously and that uncontaminated spontaneous labor is afebrile. Repeated vaginal examination, instrumentation, manipulation, all mean contamination, and we must ever be mindful that *the eleven sources of infection are the ten fingers and the throat.*

The high incidence of puerperal infection in both hospital and private practice is a blot on American obstetrics and is not in line with the progress which has been made in scientific medicine. Obstetric care is measured: first, by maternal mortality; second, by maternal morbidity with its permanent pathology and degree of subsequent invalidism; third, by the number of stillbirths and finally, fourth, by infant mortality or permanent disability attributable to the type of labor and the form of delivery. It has been repeatedly stated that maternal mortality in the United States from all puerperal causes has shown no improvement in the last twenty years. The truth of this statement has been questioned for it was not until 1915 that birth registration areas were established, and even now, there is an incomplete registration in three states and cases are buried as pneumonia, empyema, embolus and intermittent fever, and so forth, which are often of puerperal origin. Maternal mortality from all causes is largely made up from infections, toxemias, hemorrhage, obstetric accidents and operative deaths, all to some extent preventable; yet, when we come to review the mortality of the United States chargeable to all puerperal causes from 1915 to 1927 in the Birth Registration Area, we find an average of 67 fatalities in every 10,000 live births or 6.7 per 1,000 live births, except during 1918 when the influenza epidemic raised the figures to 9.2 per 1,000 live births. Of these puerperal sepsis took its toll of an average of 25 deaths per 10,000 live births in this period.

Social status, color, climatic conditions and the type of attendant, all have an influence on the maternal death rate. This is shown by the 1927 figures which I have taken from a special release of the United States Department of Commerce. The deaths from all puerperal causes per 1,000 live births were in Florida, 11.0; in Louisiana, 9.1; in Mississippi, 8.7. There is a large colored population in all of

these states which probably raises the incidence; in contrast, in Minnesota, the rate per 1,000 was only 4.4; in North Dakota, 5.1; and in Wisconsin, 5.3

Mortality rates from puerperal infection are without exception lower for the rural than for the urban districts, while the proportion of spontaneous deliveries is higher. Our cities seem to swell the general average. Norfolk, Virginia, leads the list of cities over 100,000 population with a rate of 13.1 puerperal deaths per 1,000 live births in 1927; Reading, Pennsylvania, had a rate of 13.0, and Camden, New Jersey, a rate of 11.3 per 1,000 live births in that year. In the same year, Worcester, Massachusetts, had a rate of only 3.7 and Yonkers, New York, a rate of 2.1 puerperal deaths per 1,000 live births.

The Cause Puerperal sepsis makes up from 30 to 43 per cent of all maternal mortality. This in large part can be and is preventable, as has been demonstrated in large maternity clinics and in the several out-patient teaching services throughout the country. As an illustration of what can be done—in 23,136 deliveries in the Chicago Lying-In Hospital there were 57 deaths, a mortality of 2.46 per thousand. The simple adoption of an aseptic surgical technique and the reduction of interference to an irreducible minimum has brought this change, yet, auto-infection and cross infections are entities which cannot be entirely discounted as is well illustrated by the peaks of mortality and morbidity rates which occur in February and March each year. Nature's several protective mechanisms seem better able to cope with infection in untraumatized tissues in rural districts than in the thickly populated urban areas, probably because there is less opportunity for cross infection. Trauma offers the great avenue of entrance, for all infection must have an avenue of entrance, a bug and a soil, while the severity is in direct ratio to the virulence of the bug and local and general resistance of the individual. This has been excellently demonstrated in the studies of Harris and Brown who have shown that the bacterial flora of the vagina migrate to the lower uterine segment and that identical organisms are found there after six or twelve hours of labor, yet, these same organisms are not found in the puerperal uterus on the

fifth day postpartum, proving that the reaction in normal tissues is capable of withstanding invasion unless their vitality is impaired. Blood loss and trauma are the great contributing causes which lower tissue and individual resistance—hence, the higher the operative incidence the higher the morbid rate. The maternal mortality rate is definitely lower among the whites than among the colored race. This can be attributed to the fact that hygienic and living conditions are usually better among the whites. Luetic infection is less prevalent, and furthermore, statistical studies have shown that the white woman frequently develops an immunity to streptococcal infection through the streptococcic infections of childhood, such as scarlatina, tonsillitis and rheumatism while, on the other hand, the incidence of lues is five or six times greater in the negro and scarlatinal infection is much less frequent, hence, puerperal infection is more prevalent.

In some studies which are being carried on in the obstetric clinic of the Long Island College Hospital with the help of Doctor William H. Park and his associate, Doctor Schroeder, we have demonstrated that while the general morbidity of the clinic for the past five years computed by the American Medical Association standard has been 6.8 per cent; in women with a previous history of streptococcal infection the rate is only 2.3 per cent which is in marked contrast to the rate in puerpera giving no such previous history in whom the rate rises to the formidable figure of 20.88 per cent. Another interesting fact is that the mortality rate for mothers under twenty years of age is higher than in mothers from twenty to twenty-nine. This is probably explained by the large number of illegitimate children and the high incidence of interrupted pregnancies as well as the lack of aseptic care given to this class of cases. The rate progressively rises again from thirty to thirty-nine and is highest for puerpera over forty. This is probably attributable to the lowered resistance which women of this class have owing to intercurrent disease, and also to the fact that labor in old primiparae is frequently more difficult, and therefore, increases the operative incidence.

Maternal deaths from operative interference by the unskilled and untrained attendant seems to counterbalance the improvement which has been made in obstetric practice throughout the country. In some

districts antepartum care and education of the prospective mother have reduced the occurrence of eclampsia to an almost irreducible minimum, yet, 26 per cent of maternal deaths are credited to toxemias. It is evident, therefore, that notwithstanding all that has been done and is being done to prevent this calamity, the rank and file still fail to grasp the significance of a non-proteid diet, frequent urinary examinations and the value of repeated blood pressure readings. Likewise, prenatal study and instruction have diminished the deaths from antepartum hemorrhage and in the large clinics by the recognition of malposition and disproportion, thousands of women avoid complicated labor by well-timed correction of the misplaced fetus or by timely operative intervention with strict surgical technique. The recognition of lues and its treatment by the intravenous use of salvarsan or neo-salvarsan has diminished the number of stillbirths; furthermore, it has reduced the incidence of congenital syphilis among the newborn. Our pediatricists tell us that even when the woman does not come under treatment until the last weeks of pregnancy, the child is benefited and has a better resistance to early respiratory infections. The X-ray has made it possible to diagnosticate monsters and other developmental anomalies and thus prevent needless cutting operations upon the mothers.

All of our studies go to show that the obstetrics of our country is improving in the rural districts by the reduction of infection and eclampsia, but that the mortality from all puerperal causes is kept high by the tendency to interrupt the normal course of labor by time shortening methods of operative nature resulting in deaths from anesthesia, shock, embolism, peritonitis and hemorrhage. These in many localities counterbalance the gains made by aseptic conservatism. To illustrate I will take the report of 997 fatal cases occurring in the State of Massachusetts, a State in which great care is used to determine the cause of death in each puerperal case. Fifty-eight per cent of these were credited to sepsis, eclampsia and hemorrhage, and 58 per cent had some obstetric operation. Uterine curettage, routine forceps, elective version, manual extraction of the placenta and cesarean section, all took their toll.

In a study of over 8,000 teaching hospital records we find the operative incidence very low. The forceps incidence runs from 23-34

per 1,000; version from 8–20 per 1,000; cesarean section from 8–15 per 1,000 births. Likewise, we find a great diminution in the incidence of eclampsia. In some clinics it is such a rarity owing to painstaking prenatal attention that there are not enough cases to teach the students.

Fetal mortality and fetal injury depend upon three major factors:

- 1 Placental disease due to intercurrent infections, toxemia and syphilis which explains the majority of prematures, many of the macerates and some anomalies.

2. Malposition and disproportion varying from the slight relative disproportion and abnormal positions which are readily corrected and managed by the competent attendant, to the absolute contractions which demand operative intervention. Both of the former produce dystocia and increase the fetal stress besides necessitating manipulation with cord accidents.

- 3 Character of the labor and type of operative delivery, in which we find inspiration pneumonias, cerebral hemorrhage, tentorial tears, fractures and palsies.

Antenatal care will reduce the stillbirths to one-fourth of the usual rate provided this is followed by intelligent, scientific obstetric attention at the time of delivery; yet, there are a number of women who are neither toxic nor syphilitic who habitually separate their placenta in the last week of pregnancy. Such histories should always suggest the advisability of premature induction. Malpositions are relatively infrequent. When we come to study authentic reports we find that abnormality is the exception. In the Rotunda report of 1928 there were 245 abnormal presentations in 3,779 deliveries which means that the vertex presented in 3,534 labors.

In 7,000 consecutive cases at the Long Island College Hospital, abnormal positions ranged from 46 to 51 per 1,000. In 7,000 consecutive admissions at the Methodist Episcopal Hospital the same incidence was recorded, hence, in about 18,000 cases we can say that 95 per cent presented by the vertex which means spontaneous delivery of nearly the same per cent (92) if properly and conservatively managed. Stillbirths must necessarily include all children born dead; yet, in many cases death cannot be attributed to faulty care at delivery,

as a number of women are admitted with a dead fetus. Notwithstanding this fact, a few records will show what can be accomplished by conscientious prenatal care supplemented by intelligent attendance at the time of delivery. All of these women were clinic patients for varying periods prior to confinement. All had their pelvis measured, the position of the fetus checked, their urine and blood pressures watched and blood Wassermanns done and appropriate treatment advised.

At the Rotunda Hospital, in 3,779 deliveries there were 2.9 per cent stillbirths, Greenpoint Hospital, Brooklyn, in 2,016 deliveries 3.2 per cent stillbirths; Long Island College Hospital, Brooklyn, in 3,000 consecutive deliveries, stillbirths ranged from 1.9 to 3.6 per cent; Chicago Lying-In, in 21,000 consecutive deliveries the stillbirth incidence ranged from 2.4 per cent; Jewish Hospital, Brooklyn, in 2,229 deliveries the stillbirth incidence was 3.1 per cent compared with 6.6 to 8.5 in the hospitals of the country at large.

The Remedy: Better prenatal and intranatal care which can only be attained by better obstetric education on the part of the laity and better appreciation by the attendant of the physiologic factors which enter into labor. Propaganda is producing the demand for better care, but our facilities for giving this care are not adequate for the need. We need more well equipped maternity hospitals or *separate maternity* wards in general hospitals, *specially staffed* to lower the incidence of cross infections. Better trained physicians who practice aseptic or antiseptic technique and trained nurse midwives to care for normal cases.

EFFECT OF ANTEPARTUM CARE OF THE MOTHER

BLANCHE M. HAINES, M.D.

*Specialist in Child Hygiene, Children's Bureau,
United States Department of Labor*

THE specific measures that have in recent years affected the reduction of both maternal and infant mortality can best be evaluated by a brief analysis of statistics for a series of years covering causes of infant and maternal mortality together with a consideration of factors affecting the rates.

The latest complete statistics available from the United States Bureau of the Census for the entire birth and death registration area are for the year 1927.

We shall begin our analysis and comparisons of maternal and infant mortality with the year 1922 and continue through the year 1927. Late in 1921 Congress passed the Maternity and Infancy Act, which granted Federal aid to the states for the promotion of the welfare and hygiene of maternity and infancy. Many states accepted the aid in 1922, and expanding programs as well as new state bureaus and divisions of maternity and infancy were made possible. By the close of 1927 all but three of the states had accepted the terms of the Act. The three not accepting increased their appropriations and their activities in the field of maternal and infant hygiene.

Practically every state-wide public-health program relating to maternal care has been initiated since the passage of the Maternity and Infancy Act.

The public and especially expectant mothers have been informed of the importance of early and continuous supervision of pregnant women by competent physicians or obstetricians. This information has been given through the medium of literature, conferences, visits of public health nurses and the distribution of prenatal letters. Each year state reports show that increasing numbers of child-bearing women have been reached with this information.

The birth registration area of 1922 contained 30 states and the District of Columbia. Before the close of 1927 the area had increased

to 40 states and the District of Columbia, by the addition of eleven new states (South Carolina was dropped from the area in 1925), seven of which had higher maternal mortality rates and five higher infant mortality rates in 1927 than the birth registration area as a whole. The inclusion of these states tended to increase rather than decrease the maternal and infant mortality rates in the expanding area, yet both rates were lower for the whole area in 1927 than in 1922, 76 babies dying under 1 year of age in every 1,000 live births in 1922 and 65 in 1927. The rate for women dying from puerperal causes was 66 for every 10,000 live births in 1922 and 65 in 1927.

A comparison of rates for the states and the District of Columbia in the area in 1922 with the rates for the same states and the District in 1927, exclusive of South Carolina, which was dropped from the area in 1925, gives a fairer picture of conditions and shows a greater decrease in mortality for both mothers and infants. For this area the infant mortality rate was 76 in 1922 and 64 in 1927. The maternal mortality rate was 65 per 10,000 live births in 1922 and 62 in 1927.

Infant mortality showed reductions from all causes in 1927 compared with 1922 except deaths from external causes for which the rate remained the same in both years. The efficiency of public health measures, including the stressing of breast-feeding, better formula feeding, better care and hygiene of infants, and the increase in the number of pediatricians and specialists on infant feeding were reflected in the reduction of the infant mortality rate due to gastrointestinal diseases from 13 in 1922 to 8 in 1927 and of that due to respiratory diseases from 14 in 1922 to 10 in 1927. The reduction in infant mortality due to natal and prenatal causes from 36 in 1922 to 34 in 1927 cannot be attributed to the better care of the baby after his birth, but indicates better care of the mother before the birth. Not only was the infant mortality rate from natal and prenatal causes lower in 1927 than in 1922; there was also during the intervening period a downward trend in the rate due to these causes of death, which seems to reflect the growth of public health work in the field of maternal care.

An analysis of maternal mortality by causes shows slightly lower rates in 1927 than 1922 for accidents of pregnancy and accidents of

labor. The decrease in the death rate from puerperal causes is accounted for almost entirely by a decrease in the rate due to albuminuria and convulsions. The rate from this cause was 18 per 10,000 live births in 1922 and 15 in 1927. It is in this group of causes of death that we should expect antepartum care to have the greatest influence. Certainly, the reduction in rate has been coincident with the increase in health instruction to expectant mothers and the improved care given by physicians.

However, we have not yet reached the irreducible minimum for puerperal mortality due to albuminuria and convulsions. This is shown by the study of maternal mortality for 1927 and 1928 made by 15 states in cooperation with the United States Children's Bureau. An analysis of the material for 1927 shows for 13 states nearly 800 deaths due to albuminuria and convulsions. Reports on prenatal care were secured for 728 cases. More than one-half of the women (373) received no prenatal attention. Of the 355 who had prenatal care, only 20 mothers had the grade of care which conforms approximately to the requirements in *Standards of Prenatal Care* prepared by the Consulting Obstetrical Committee of the Children's Bureau and issued by the Bureau. Seventy-six mothers received care below this high standard but regarded as good, and 64 had fair care beginning somewhat late in pregnancy. In three cases the care could not be graded, but such care as was given the remaining 192 mothers in this group was wholly inadequate.

This statement of the amount and kind of prenatal care given relates only to a group of women who died from albuminuria and convulsions; a survey of care given mothers surviving childbirth might show a larger proportion of women receiving proper prenatal care.

However, the mortality study shows that of the 728 women in this group for whom a clear report of antepartum care was given, more than four-fifths had inadequate or no antepartum care.

A further analysis by causes shows no improvement in the rate from puerperal septicemia from 1922 to 1927 in the United States birth registration area of 1922 (exclusive of South Carolina). The rates for septicemia were 23.7 in 1922 and 23.9 in 1927 per 10,000 live births.

Of the 3,234 puerperal deaths in 13 states analyzed for the maternal mortality study of 1927, 1,278 (40 per cent) were due to puerperal septicemia. One of the objects of the study has been to determine the underlying causes of the deaths from sepsis, which form so large an element of the puerperal losses. It was found that abortions preceded 45 per cent of the deaths from septicemia. Of a total of 570 abortions, 309 were induced, 154 were spontaneous, 19 were therapeutic; for 88 the type was unknown. Thus abortions known to be induced were responsible for about one-fourth of the deaths from sepsis.

A study of 796 cases in the sepsis group to which prenatal care could be applied and for which it was reported, showed that nine-tenths of the women had inadequate or no care.

Since puerperal septicemia is developed postpartum in a majority of cases, antepartum care of the mother is not so influential a factor as when related to toxemia. Such care is advantageous, however, in that earlier recognition of conditions gives the obstetrician a greater choice of methods to be used at the time of delivery. Unquestionably the elimination of induced abortions would lower the maternal mortality due to septicemia. Information on the relation of sepsis and induced abortion to our high maternal mortality rates should be included in education of the public as to the importance of prenatal care.

The conclusions are: First, that antepartum care of the mother has reduced infant mortality due to natal and prenatal causes and can reduce it still further.

Second, that the reduction in maternal mortality noted has been chiefly due to a decrease in deaths from albuminuria and convulsions, and that antepartum care of the mother has been an important factor in that reduction; further that the extension of adequate antepartum care would prevent many deaths from this cause.

Third, that although antepartum care of the mother has not diminished the mortality rate from puerperal septicemia, reduction from this cause may be anticipated as a result of a more thorough understanding by the public of the danger of septicemia following induced abortion.

Our final conclusion is that the promotion of antepartum care of

the mother through public health programs of work has effected reductions in infant deaths from natal and prenatal causes and resulted in a lower mortality rate for mothers from puerperal albuminuria and convulsions.

REFERENCES

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THE EFFECT OF PRENATAL CARE UPON THE INFANT

CLIFFORD G. GRULEE, M.D.

*Clinical Professor and Head of the Department of Pediatrics,
Rush Medical College, University of Chicago*

IT is perfectly obvious that the primary function of prenatal care is and must always be directed towards the care of the mother; her health is the thing of first importance. Nevertheless, it has been felt that such care would have a very beneficial effect upon the offspring. When we assume that the health of the mother presupposes the health of her unborn child, we are taking a position which is probably correct in part, but not definitely proven. We have some reason to raise this question because we know that unfortunately there are born to women, who are apparently in perfect health, deformed and deficient infants. One need only mention mongolian idiocy.

The question of the effect of prenatal care on the infant should be approached from two angles: first, the main effect; and second, the remote effect. Our knowledge of the physiologic and pathologic conditions of the fetus is almost altogether lacking, and with this failure in our knowledge we now grope along empirically attempting to use such scientific facts as we now possess. The first test of the effect of prenatal care will probably be its effect on neonatal mortality. In spite of the fact that much of the mortality in the first few days of life depends upon obstetrical care, it seems not unfair to expect that prenatal care will bring about a reduction in this mortality.

The most enlightening statistics from this country, are those of Holt and Babbitt. The first statement calls attention to the imperative necessity of the study of disease at this age. They state that of 100 infants' deaths occurring in the first year, approximately 33 occur in the first month, 28 in the first two weeks, 22 in the first week, and 13 on the first day. This study is made on a total of 10,000 births at the Sloane Hospital for Women in New York. Of these 10,000 births, 253 were abortions, 429 stillbirths, and 9,318 living

An analysis of various other statistics shows that the vast bulk of deaths at this age occurs as a result of prematurity or congenital debility. For instance, in the Baudelocque clinic from 1901 to 1908 there were 345 deaths in the first 10 days of life. Of these, 275 were due to congenital debility (prematurity), 32 to syphilis, 10 to hemorrhage, 5 to digestive troubles, 6 to pulmonary troubles, 4 to icterus and 3 to erysipelas. This group probably represents a fair list of those conditions which are met with sufficient frequency to claim our immediate attention. When we analyze, however, the cause of congenital debility, we find that the chief item consists of "unknown causes" 60 per cent, and that twins and triplets account for 15 per cent more, which means that in the present state of our knowledge 75 per cent of the cases of congenital debility are from unknown causes or from conditions over which we have no control. If we further analyze the remaining fourth, we find that 8 per cent or about one-third are due to disease of the mother, of which tuberculosis is most prominent, and such conditions as anemia, nephritis and heart disease are worthy of mention. It would seem that the only way to overcome mortality from these sources in most cases would be to prevent conception. Nor does the next group, consisting of 4 per cent, offer much better chance, since this group is caused by habitual premature labor. We see, therefore, that almost exactly seven-eighths of our cases of congenital debility are from causes which, in the present state of our knowledge, are beyond our control. The two chief causes in the remaining groups are gynecological conditions, such as placenta previa, and syphilis. We here come to conditions which should be, and are, relatively easy to master and it is in one of these, syphilis, that we get the best results from prenatal care. Acute infections of the mother, eclampsia, trauma

and induction of labor, are conditions in which at least we may hope to get better results.

When we turn, however, from the premature to the deaths in infants at term, the picture is decidedly brighter. There is no question but that prenatal care has materially reduced the chance of death from syphilis in offspring. The chances of success are materially increased the earlier in pregnancy the mother applies for prenatal care. It may be said that we cannot expect, in the present state of our knowledge, to reduce the deaths from congenital malformation. The other conditions, hemorrhage, digestive and pulmonary troubles, icterus—can be little influenced by prenatal care.

Is the chance of success in reducing infant mortality by prenatal care quite as small as would seem to be indicated by the foregoing analysis? I think not.

There are some outside factors which a simple analysis of statistics from obstetrical clinics do not bring out. First and foremost, prenatal care means, in all probability, better obstetrics. The man who follows his patient through the period of pregnancy is much more likely to prepare himself to meet the problems of confinement more intelligently. Again, it seems altogether likely that our efforts to promote the health of the mother will meet with some unexpected successes for which we cannot account at the present time. And third, and by no means least important, such care will stimulate scientific effort to investigate the problems relative to the newly-born infant and the fetus.

In conclusion, I might beg you to withhold your judgment regarding the effect of prenatal care for a period of years. The problems to be solved are neither so obvious nor so easy as those we have had to meet in reducing infant mortality; and success can be expected only after long years of earnest and persistent study.

EFFECT OF INTRAPARTUM CARE ON THE MOTHER

J. P. GREENHILL, M.D., F.A.C.S.

*Attending Obstetrician, The Chicago Lying-in Hospital and Dispensary;
Attending Gynecologist, Cook County Hospital; Associate in
Obstetrics, Northwestern University Medical School
Chicago*

THE maternal death rate in the United States is not definitely known but it is not an exaggeration to say that at least 20,000 women die every year as the direct or indirect result of childbirth. Of this number approximately 8,000 die from puerperal infection, 5,000 die as the result of eclampsia, 4,000 succumb to excessive loss of blood and about 3,000 lose their lives from other causes associated with childbearing. The number of women who are severely but not fatally injured during labor cannot be estimated but it is undoubtedly enormous. The common belief is that between 50 and 60 per cent of all the gynecological operations performed are necessitated by the damage which occurs at the time of confinement.

This paper deals with the effect of intrapartum care on the mother. It is a well-established fact that the proper conduct of labor will considerably reduce both the maternal mortality and morbidity. We have proof of this all over the world but I should like to analyze briefly the results obtained at the Chicago Lying-in Hospital. In this institution, during a period of nine years, there were 23,136 deliveries. The hospital is an "open" one and in addition to the regular staff, approximately 140 outside physicians deliver women in it. Practically all of these doctors are careful and conscientious, and they willingly conform to the prescribed technic. For obvious reasons the incidence of operative deliveries in this hospital is much higher than it is for general obstetric practice, hence there is occasion for increased maternal mortality and morbidity.

Among the 23,136 women there were 57 deaths, giving a total maternal death rate of 0.246 per cent or 24.6 deaths per 10,000 births. For the entire registration area in the United States the incidence was 68 per 10,000 live births in 1921, 66 in 1924,¹ and 65 in 1927. The death rate in our country in 1924 varied from 45 per 10,000 living

births in Utah to 121 in Florida.² In England and Wales for the year 1926 the maternal death rate was 51.4 per 10,000,³ in Canada for the year 1926 it was 60,⁴ and in the city of Amsterdam for 1928 it was 64.⁵

According to Woodbury,¹ two-fifths of all the maternal deaths in the registration area of the United States are due to septicemia. Hence the most important single cause of these deaths is puerperal infection which is the result of lack of surgical cleanliness. By means of careful asepsis almost all of these deaths can be prevented. Nicoll² analyzed 696 maternal deaths which occurred in New York state by studying the death certificates and personal replies to questionnaires sent to the doctors who reported the deaths. The death certificates showed that 37 per cent of the deaths were due to puerperal sepsis, 21 per cent to toxemia and 9 per cent to hemorrhage, but these figures are too low as indicated by the answers to the questionnaires. Furthermore, the death certificates showed that only 5 per cent of the cases were operative, whereas the questionnaires revealed that 38 per cent of the cases had been operative.

The causes of death at the Chicago Lying-in Hospital were as follows:

	No	Percentage
Pneumonia (chiefly after general anesthesia) . . .	14	24.6
Toxemia	10	17.5
Heart disease	9	15.8
Abruptio placentae	6	10.5
Embolism	5	8.8
Peritonitis (one from gonorrhea)	4	7.0
Septicemia	3	5.3
Rupture of uterus	3	5.3
Hemorrhage from placenta previa	1	1.8
Shock	1	1.8
Enlarged thymus	1	1.8
	<hr/> 57	<hr/> 100.2

There were three deaths from septicemia but only one of these resulted from an infection which developed in the hospital.

The morbidity at the Chicago Lying-in Hospital has likewise been exceptionally low. The standard accepted is the most rigid reported, namely, every elevation of temperature up to 100° F. or above even if recorded only once from the moment of delivery until the patient is

discharged from the hospital Under this strict standard, the total morbidity among the 23,136 patients was 10.8 per cent. The morbidity standard of the British Medical Association reads as follows: "Puerperal morbidity should include all fatal cases and also all cases in which the temperature exceeds 100° F. on any two of the bi-daily readings from the end of the first to the eighth day after delivery." If we follow this standard the incidence of morbidity at the Chicago Lying-in Hospital was only 4.3 per cent, which is indeed very low. It is needless to emphasize that a fair proportion of this morbidity was due to extra-genital causes.

The intrapartum care given the patients at the Chicago Lying-in Hospital is essentially the same as is given in any large teaching or special maternity hospital, and I shall attempt to outline the features of this type of management.

Each of the three stages of labor requires special consideration. In the first stage, it is generally agreed that the best results are obtained when a policy of watchful expectancy is followed. However, this should not be interpreted to mean that everything should be left to nature else many patients would be definitely neglected. It is assumed that long before a patient goes into labor, she has had a complete physical examination and her condition is refreshed in the mind of the physician by a rereading of his prenatal notes. Most women who are in the throes of active labor have no inclination to drink or eat, but they should be encouraged and even made to drink a large amount of water. They should also be given a moderate amount of solid and semi-solid food, especially carbohydrates. In cases of prolonged labor, if a large amount of carbohydrate food cannot be eaten by the patient it is best to give glucose subcutaneously or intravenously, especially before an operative delivery. In cases where there has been great loss of blood as in placenta previa, blood transfusion is indicated. The bowels should be evacuated at least once every twelve hours or an enema given, unless the child is soon to be born. An enema at such a time is inadvisable because the liquid feces may be expelled during the delivery of the baby and the field will be contaminated. The bladder should frequently be emptied preferably by spontaneous action, else by catheter. Many women in labor do not think of emptying their

bladders or prefer not to make the effort, hence the bladder must be watched carefully. A full bladder or rectum occasionally interferes with the normal mechanism of labor.

Sedatives such as morphin with the addition of atropin, magnesium sulphate or scopolamin should be given hypodermically in the first stage not only to relieve pain but also to preserve the patient's physical strength and her mental attitude. The psyche is a very important factor, especially in long, hard labors. It may not be amiss to add parenthetically, that since the morale of the patient's husband influences the patient considerably, it is important to say a few words of encouragement from time to time to the husband and make certain he obtains some rest as well as the patient.

In the vast majority of cases, the entire first stage can be conducted by means of abdominal and rectal examinations, but a vaginal examination should be made when there is any doubt. The physician should constantly be on the alert for complications such as threatened rupture of the uterus, abruptio placentae, eclampsia, and cardiac collapse. It is important that an occipito-posterior position be recognized early, for this position is a frequent one and if it persists and is unrecognized, it may cause much grief.

Cases of definite cephalo-pelvic disproportion must be detected early and cesarean section performed. It is gross negligence to overlook such a condition until a patient has been in labor so long that a cesarean section is a dangerous procedure for the mother. However, the low cervical cesarean section, which is by far the safest type of cesarean section, may be performed even after labor has been in progress a relatively long time.

Attention should be paid to the asepsis and antisepsis of the patient's surroundings. In making rectal examinations sterilized gloves should be used and special care should be taken to avoid inserting the thumb into the vaginal introitus. Special preparations are of course necessary when vaginal manipulations are contemplated. People with respiratory infections, boils or other infections should be kept away from patients in labor and labor rooms and this applies even if the husband is involved. It is taken for granted that if the doctor has an infection he will not conduct a labor case. The physician

himself and his assistants, be they doctors or nurses, should scrupulously avoid contact with infectious cases and pus cases, and should not visit pathological and bacteriological laboratories while in attendance upon a patient in labor.

After the cervix is completely effaced and dilated, that is when the second stage has begun, the physician should not leave the patient. Sedative drugs should not be given at this time nor should they be given for an hour or two before the second stage has begun because occasionally they have a detrimental effect on the child. After complete dilatation, an inhalation anesthetic such as ethylene or nitrous oxide may be given. In most cases, however, the hypodermics administered during the first stage make an anesthetic unnecessary until shortly before actual delivery takes place. Wherever possible, local anesthesia should be used instead of an inhalation anesthetic, for the risk is decidedly less to both mother and baby. In patients with toxemia and pulmonary tuberculosis general anesthesia is contraindicated. In toxemic patients the anesthetic adds to the intoxication already present and distinctly increases the risk of pneumonia.

Scrupulous care should be paid to asepsis and antisepsis just as for any major operation. Every person in the delivery room should wear a white uniform, or gown, a cap, and a mask. It is very important that the mask should cover not only the mouth but also the nose. Mercurochrome liberally used outside, and in operative cases inside the vagina, helps to reduce the morbidity. In delivering the child, the head should be permitted to escape very slowly and in extreme flexion. The latter maneuver brings the smallest fetal diameters to the outlet and diminishes the frequency of perineal lacerations. An episiotomy should be performed when the perineum does not stretch readily or if there is any danger to the fetus in the prolongation of labor. The episiotomy may easily be performed under direct infiltration anesthesia.

The fetal heart tones should carefully be controlled not only in the first stage but also in the second. During actual delivery, be it spontaneous or by means of forceps, the De Lee-Hillis head stethoscope is very useful. Irregularity in the fetal heart tones may indicate distress not only in the child but occasionally danger to the mother, as for example in premature separation of the placenta. Operative inter-

ference should not be undertaken before there is complete effacement and dilatation of the cervix without a very urgent reason, because the consequences may be serious. In cases of heart disease, pulmonary tuberculosis, toxemia, Graves' disease and other such afflictions, delivery should be accomplished as soon after complete dilatation of the cervix as is consistent with the safety of the mother. A forceps delivery may occasionally be avoided by a properly performed Kristeller expression. Local anesthesia should be used in these cases whenever feasible.

Pituitrin, unless used to induce labor, should never be used before the baby is born. Too many evil results have been observed even after the administration of very small doses

The proper conduct of the third stage of labor is of the greatest importance because according to De Lee, "more women die from accidents of the third stage of labor than during the other two combined." Strict conservatism should be the rule in this stage unless hemorrhage forces activity. If manual removal of the placenta becomes necessary it is safest to change gloves and liberally use mercurochrome in the vagina. The routine use of pituitrin after the baby is born and of ergotamin tartrate after the placenta is delivered will prevent excessive loss of blood in many cases. If hemorrhage cannot readily be controlled by drugs and massage, uterine tamponade should be resorted to without delay. It is not good policy to wait until the patient is exsanguinated before doing this but the asepsis must be as perfect as possible, even though haste is imperative. Women who lose a great deal of blood during labor, make slow recoveries, they frequently become infected, they do not nurse their babies well and they may not regain their health for a long time.

All danger is not over when the third stage has been completed. Hence it is advisable to have some one watch the patient closely for at least one hour after delivery. Patients who have had a general anesthetic must be closely guarded for many hours.

The foregoing brief outline indicates the care given the patient during labor at the Chicago Lying-in Hospital. We firmly believe that if all women in labor received such supervision and treatment, the maternal mortality and morbidity would be considerably reduced.

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THE EFFECT OF INTRANATAL CARE UPON THE INFANT

WALTER R. RAMSEY, M.D.

Associate Professor of Pediatrics, University of Minnesota

IN other words, what happens to the child as a result of the obstetrical care it receives during the process of being born? If all prospective mothers were normal, and nature did her job 100 per cent, no intranatal care would be necessary. Neither of these suppositions being true, a certain percentage of cases must have some interference.

It has generally been taught that 80 per cent of all pregnancies are normal and capable of spontaneous delivery. We will assume then that 20 per cent of infants need intranatal care in some degree. In Europe fully 85 per cent of the children are born with no other supervision than midwives who have had more or less training in the field of obstetrics. When interference in promoting the child's delivery is thought to be necessary, an obstetrician is called in. In this 85 per cent supervised by midwives, very little intranatal care is given the child, nature is permitted to take its course and rarely is an anesthetic given the mother.

In this country, on the other hand, 85 per cent of births are in the hands of physicians with a much greater percentage in which obstetrical interference is thought to be necessary. What effect this has upon the infant and how the number of birth injuries in Europe compares with the number in this country, there is no accurate means at present of determining, although the Scandinavian countries with a

system of well trained midwives, claim the lowest mortality of any of the countries in the world.

That there is a large number of injuries to the infant directly attributable to the process of being born, pediatricians and especially those who have intimate contact with a Children's Hospital can attest. Every day and every week during the year there is a constant procession of these maimed children with all varieties and degrees of injuries passing through for most of which little if anything can be done

We are constantly seeing the effects of injuries about the face and head as a result of forceps, paralysis of the arms from injured brachial plexus; fractured femurs from traction; many of these are transient in character, but not infrequently permanent scars and paralysis of the muscles are carried through life.

The birth paralyses are so frequent and so appallingly hopeless in the way of treatment that one wonders if all of these injuries were inevitable. Of course we know that many of these intracranial hemorrhages occur in spontaneous births which have had no intranatal care whatsoever. There are, however, a good many of these cases which after instrumental delivery and after version give definite evidence of intracranial hemorrhage directly at birth. The demand in this country for painless rapid childbirth is responsible for much unnecessary interference on the part of the physician, accompanied by the use of the various forms of anesthesia and drugs. What do we know of their effect upon the infant? If the injuries sustained by the child in the process of being born are inevitable, and the best intranatal care which science can offer, and only when it is needed, is being given; then we must be content. If, however, the conviction which many careful scientific observers have is true, that a good percentage of these tragedies are unnecessary, it is the duty of the American Child Health Association and all others who are interested to make a searching examination to discover the truth and find means to remedy whatever practices are found to be detrimental to the best interests of mother and child.

THE EFFECT OF POSTPARTUM CARE ON THE MOTHER

JENNINGS C LITZENBERG, M.D.

Chief, Department of Obstetrics and Gynecology, University of Minnesota

THE title of this paper, I fear, should be The Effect of the Lack of Postpartum Care on the Mother because after-delivery methods have but in a small measure attained the importance they should in the minds of the physician and the public. The propaganda for antepartum care has worked wonders in bringing the mother to her delivery physically capable and her baby in good health, but we are apt to forget that the objects of motherhood are not completely attained by bringing a robust baby to a living mother. To reach the ultimate goal that mother must be restored to her family and the community in perfect health. The burdens and accidents of pregnancy and labor often leave even the previously healthy woman with conditions requiring the most skillful management by the physician and complete cooperation by the patient, sometimes for a long time after delivery.

The Puerperium

The puerperium, or that time required to restore the recent mother to normal, is too generally thought of as only the lying-in period of two weeks after delivery, at which time observation and treatment too often cease. To grasp this subject properly we should view the puerperium as consisting of three stages: First, the immediate puerperium, or that time during which the mother is in bed; the intermediate puerperium, which is on the average about six or eight weeks; and third, the remote puerperium, extending to that indefinite time when the woman has completely recovered from all effects of her childbirth. This period may be a few weeks or many months.

The great increase in hospitalization of maternity cases has measurably improved the care of the mother during the immediate puerperium; the loss of blood is more carefully watched, the treatment of infections more skillfully carried out, toxemias are treated better and the general hygienic regime vastly improved and more generally followed.

In the intermediate puerperium more, but not enough, physicians

are instructing their patients about the care they should observe to insure future health, and increasing numbers require them to report for examination in six weeks. But most patients and some physicians do not realize the importance of the remote puerperium and the necessity of observation until every untoward result of childbirth has been overcome and the woman restored to perfect health.

The time permits the consideration of only a few of the most important and too frequently neglected subjects.

Anemia

Large numbers of puerperal women who seem to have nothing palpably wrong with them but are tired, nervous and drag themselves listlessly around, are quickly restored to health and vigor by the treatment of a neglected anemia.

The frequency of anemia during pregnancy, made worse sometimes by even the normal loss of blood, should remind us that the treatment of puerperal anemia should begin before the baby is born, should be continued during labor by conserving every drop of blood possible and should caution us to watch the blood after delivery until it becomes normal.

Infections

The common sequelae of puerperal infection are usually, on account of their evident symptoms, not overlooked but those conditions requiring routine careful physical and laboratory examinations are apt to be missed. It is not sufficient to carry an infected woman through to the disappearance of local evidence of infection, but a thorough general examination must be made to be sure that there are no remote consequences of infection. Most dangerous heart and kidney affections follow even the lesser grades of puerperal infection.

Pyelitis and Cystitis

Infections of the urinary tract are not only among the commonest complications of pregnancy and the puerperium but they gravely menace the future health and even the lives of mothers unless they are followed far beyond the disappearance of fever and subjective symptoms, until the last evidence of infection has gone from the urine.

Many of these women, if untreated, develop a nephritis, are never well again, are incapable of further child bearing and meet an untimely end.

Toxemias and Eclampsia

The propaganda for antepartum care has reaped a rich reward in the saving of mothers and babies; toxemias are detected earlier and better treated and convulsions seldom occur in women who have faithfully attended a prenatal clinic and have been delivered in well regulated maternities. But when a toxic mother leaves the hospital apparently well, our duties are not at an end. Some of these women, if they are observed regularly for many months, will be found to have albumen and casts in their urine from time to time, indicating that their kidneys have not entirely recovered from the effects of the toxemia. A large majority of women who have survived an attack of toxemia of pregnancy or even convulsions, never show, in the future, any evidence of permanent injury of any kind, but some of them do. Therefore, to be sure that no case of delayed recovery be missed, every case of toxemia or eclampsia should be periodically observed and treated for many months or until repeated examinations insure us that there are no toxic sequelae present.

Displacements of the Uterus

While some women have congenital symptomless retroversion of the uterus, many others acquire displacements following delivery with health disturbing consequences.

To prevent and cure these acquired retroversions and potential prolapses, the pelvic floor must be left thoroughly competent. The patient should be given general physical exercises to tone up the muscular system and special exercises such as the knee-chest position or better the kangaroo walk to aid the natural return of the uterus to its normal position. At the end of six weeks, the end of the intermediate puerperium, every puerperal woman should be examined. If the exercises have not resulted in a normal position of the uterus it should be replaced and a pessary accurately fitted.

If the patient has been examined before her conception and is known to have a congenital displacement, the pessary will probably not cure the retroversion. However, even in these cases a permanent cure

is sometimes accomplished. Nearly all the acquired displacements will be cured by a properly fitted pessary. The pessary should be worn six months and the patient examined every month while she is wearing it to be sure that it is kept properly adjusted, and to insure cleanliness. In my experience of many hundreds of cases of retroversion, a cure of the retroversion has occurred in 90 per cent of the cases if the pessary is fitted soon after delivery, while on the other hand if it is introduced at a later time the failures are at least 90 per cent.

The Nervous System

We see many "nervous wrecks" and even psychoses after delivery. This should not be a source of wonder if we remember the tremendous strain upon the nervous system during pregnancy and labor, particularly a prolonged or complicated delivery. All women and especially that type known as the "nervous woman" must be observed and treated for a long time after delivery until we are sure that nervous stability has been restored. Mental hygiene has in the puerperium one of its most fruitful fields.

Cervicitis

The direst results may follow infection of the neck of the womb, namely, cancer. The foundations for many a cancer are laid at the delivery table by tears of the cervix, leading to infection.

Practically every woman with puerperal sepsis is left with an infected cervix and a high percentage of those who escape true sepsis acquire local infection of the uterine neck because of the ease of infection following delivery. Therefore, every puerperal woman should be treated until all evidence of cervicitis has disappeared.

The one thing we know about the cause of cancer is that it grows only at sites of chronic irritation. A torn, infected cervix causes chronic irritation and invites cancer. It is a precancerous condition; therefore our first step in prevention of cancer of the cervix is to insure a well healed laceration of the cervix. If the tear be small, it may heal spontaneously; if more extensive, it will require repair. Whether it should be sutured immediately after delivery, intermediately ten days afterwards, or some weeks, or months later has no place in this discussion but that every badly lacerated cervix which causes infection should

be repaired is evident. Infections of the neck of the womb after delivery are easy even in the absence of tears, as evidenced by prolonged discharge; therefore no mother should be considered as restored to health until she has no discharge and the cervix appears perfectly healthy. This may require local treatments in very mild cases, cauterization or repair of the cervix in the more severe or stubborn cases.

Eversion of the mucous membrane of the cervical canal caused by tears exposes the glands to infection, followed by profuse discharge often causing erosion and epithelial cell overgrowth, which is only a short step to cancer. Ninety-five per cent of women with cancer of the cervix have lacerations and infected cervixes.

When we recall that cancer grows only where there is chronic irritation, that an infected torn cervix is always chronically irritated, that between 80 and 90 per cent can be cured and nearly all the others improved, and when we further recall that the deaths from cancer of the uterus have increased 12 per cent during the last decade, it ought not to be difficult to impress upon the physician and his patient that observation and treatment should not end with her leaving the hospital or even with her examination six weeks after delivery, but should continue until she is restored to perfect health.

Summary

My message in brief is that the ultimate welfare of the mother cannot be secured by good antepartum and intrapartum care alone, but requires postpartum observation and treatment prolonged until she is restored to perfect health. To insure this it is necessary to:

1. Begin postpartum care at delivery by preventing hemorrhage and restoring anatomical integrity.
2. Meticulous observation to all the details of maternal hygiene during the lying-in period (which limited time has prevented discussing in this paper).
3. A careful examination and correction of all abnormalities before discharge at the end of the immediate puerperium.
4. The mother should be instructed to report for examination six weeks after delivery at the same time telling her what she should and should not do in the meantime.

5. A thorough examination at the end of the intermediate puerperium and correction of all abnormalities possible at this time and,

6. A continuation of observation and treatment for an indefinite time until the mother is restored to her family and the community in perfect health

7. If adequate postpartum care is not carried to its ultimate conclusion, whatever the time required, grave anemia, general ill health, endocarditis, myocarditis, nephritis, neuroses, psychoses, permanent displacements, cancer, and death may be the unhappy end of the process which normally should be the happiest event in life, motherhood.

THE EFFECT OF POSTNATAL CARE ON THE INFANT

FREDERIC W. SCHLUTZ, M.D.

Professor of Pediatrics, Medical School, University of Minnesota

THE total figures for infant mortality have been greatly reduced in every part of the civilized world during the last decade.

This reduction affects every age group except the first month of the infant's life. For this period, and particularly for the first two weeks of the infant's life, the mortality figures are almost as high as they ever have been.

It is well to examine again and again into the causes which bring this situation about to see whether improvement is not possible.

We recognize five great and principal causes which jeopardize the infant's postnatal existence or cause its early or sudden termination. Singly, or combined, they furnish the cause for postnatal mortality figures.

A certain percentage of infants are born with congenital anatomical defects so considerable or serious in their location, that viability is impossible, or is of only short duration.

For various and diverse causes, the infant is born prematurely. Depending upon the degree of this prematurity, his viability and life are jeopardized, and only the most skillful management will bring him safely through this dangerous period of his existence, and place him

in a position where the chances of survival and fairly normal progressive development are equal to those of his full term brother or sister

A certain number of infants are seriously injured at the time of birth, and succumb in the immediate postnatal period to such injuries. These birth injuries are not always the result of unskillful management of labor

Careful obstetrical and pathologic anatomical research as carried on by Doctors Adair, O'Brien and others has indicated that such injuries, resulting in hemorrhage, can occur in supposedly easy short labors.

A large percentage of birth injuries will always be fatal. It is certainly true that a large part of them are fatal on account of improper or unskillful postnatal management.

Even if the issue is not fatal, there may be lifelong disability, with either physical or mental impairment, or both.

The susceptibility of the infant to infection is an age-old clinical experience.

His comparatively low and often inadequate immunologic defensive reactions are a fact more recently established by careful research. This has, and will directly lead to some more hopeful points of attack on the high mortality during the first month of life.

The poor thermal control of the infant during the first few weeks of life is often of fatal consequence and contributes in no small measure to high infant mortality at this period.

Of the five causes mentioned, only the first one leaves us without any point of attack.

Malformations and birth defects are, in only exceptional instances, amenable to plastic treatment even in most skillful hands. Fortunately, they furnish the smallest part of the infant mortality at this age.

It is quite different with the other four principal causes. In them, proper postnatal care is a large and determining factor in lessening the mortality.

With the possible exception of the treatment of birth injuries, the problem of postnatal care is essentially a pediatric problem

The newer knowledge of nutrition and the factors which favorably

influence growth and development of the infant, are of even greater moment for the premature infant than for the normal.

There have been great advances made in the artificial feeding of the infant, and a not less greater advance in the thorough appreciation of the importance of breast feeding for the early age of the normal infant and still more so for the premature.

The results obtained by skillful breast feeding, or even artificial feeding and meticulous nursing care, are at times truly remarkable.

One cannot escape the conviction that if this type of postnatal care could always be realized in every case of prematurity, the mortality from this cause would be immeasurably reduced.

Postnatal premature care need not be excessively expensive, or unnecessarily complicated.

When one sees the formidable equipment for this purpose in some institutions, one could easily gain the impression that this is the case.

The finest possible results, surely equally good results, can be obtained with very modest equipment, provided the physician and attendant are equally skilled and conscientious in the discharge of their duties.

I believe it is really at this point where we have and will find the weakest point in the structure of postnatal care.

The postnatal care of birth injuries is a more difficult problem. It is at all times, and under any circumstances most formidable. The decision as to proper procedure in a given case is always difficult.

Radical procedures, especially operative, are difficult, and serious even in very skillful hands. On the other hand, a waiting and expectant policy commonly has fatal consequences, or presages gloomy prospects for the future normal physical and mental development.

It would seem that the only hope for the reduction of mortality from this cause, by postnatal influence, would lie in improved obstetrical training and diagnostic training of the practitioner to the point where he will be able to quickly recognize the injury, approximately gauge its extent, and know what to do or have done for its immediate relief, if this be possible.

The same thing is true of such conditions as Melaena Neonatorum and all types of hemorrhagic disease or manifestation of the newborn.

Too many infants are lost from this cause in the first few days or weeks of life because the physician does not know what to do or does not act promptly enough, or has taken no means, such as an observation of the bleeding and clotting time, to warn him in advance that such a complication is impending or may be looked for. I believe I am making no extravagant statement, when I say that the largest part of the deaths in early infancy from this cause are preventable by better postnatal care.

Second to prematurity, the largest death toll in early infancy is taken by infections. They are confined largely to the respiratory tract, and the lymphatic structures of the throat, or at least have their beginning there. Before the fatal termination they have at times become systemic and very extensive.

Modern immunologic research has demonstrated the limited defensive reactions of the very young infant to infections

For the first few days of his existence, he is dependent almost entirely, in this regard, upon the momentary supply conveyed to him as an initial contribution from the maternal blood.

The independent functioning of his own defensive mechanism does not take place as rapidly as one would expect.

There is at least a period of ten days or two weeks during which it is very inadequate and during which the infant is very vulnerable to every form of infection.

There are two elements in the postnatal care which will influence this mortality cause. Their success or failure depends solely upon the immediate attendants.

Obviously the infection must be kept from the infant. No one, with even the slightest upper respiratory tract infection, should be in attendance upon the infant and surely, under no circumstances, in close contact with him.

There is great carelessness in this regard because the individual who is so affected regards it as of trivial consequence.

The infection, if present in the infant, should receive prompt treatment. This the medical practitioner commonly neglects to do because it also seems to him too trivial a matter.

Alarm and anxiety come only with mounting rapidity, when the

pulmonary tract becomes involved and the deadly proclivities of the process become apparent.

Therapeutic procedures which are so simple and adequate at the beginning of these processes, fail completely when the infection has completely gotten out of hand, and has become systemic, or has extensively involved the lungs.

The issue then, in spite of every known therapeutic procedure and consummate care, is very commonly fatal. This is tragic in view of the fact that many of these deaths could have been prevented by timely effort and care.

Adequate postnatal care could influence this really considerable infant mortality cause better than almost any other.

The laity, as well as the medical practitioner, must learn more thoroughly to appreciate the danger of the common cold and must be better versed in the ways of preventing it or minimizing its potential dangers by adequately treating it.

Thermal causes finally account for a certain percentage of the immediate postnatal mortality

The heat regulatory mechanism in the very young normal infant is very inadequate and functions with considerable uncertainty. These conditions are infinitely multiplied in the premature infant.

Any infant weighing under 2,500 grams or five and one-half pounds is in considerable danger if the temperature in his immediate surroundings is not kept at an even, and sufficiently warm level.

If there are great fluctuations in his surrounding temperature, he has not the heat regulatory mechanism to quickly and adequately adjust himself to such changes.

Sudden collapse and heart or respiratory failure can and do frequently occur under such conditions.

It is again a question of care and precaution on the part of the immediate attendant and the medical practitioner. The problem is acute in the premature infant and remains so until he has passed the 2,500 gram mark.

The maintenance of proper thermal conditions in the immediate environment of the newborn or the premature infant is a problem of

careful conscientious care, and can be accomplished with surprisingly modest and inexpensive equipment.

In the University of Minnesota obstetrical department we have managed the problem successfully with equipment that could be installed in the simplest home at a cost that is almost insignificant.

There can be no question that mortality from this cause can be reduced by proper and conscientious postnatal care.

It is again a matter of proper understanding and judgment on the part of both the medical and lay attendant upon the infant concerned. If either one of them is unskilled, or cannot recognize the danger when it exists or threatens, or does not know what to do in the emergency, or, what is worse, is criminally careless in the matter, infant mortality from this cause will always remain high.

I believe it is quite clear to everyone that the still inordinately high postnatal infant mortality can be reduced and that the line of attack lies in better postnatal care.

How can this be brought about, and why has it not been more successfully brought about so far in our present day with all the effort expended in this direction and toward this goal?

The shortcomings of the situation can be summed up, I believe, and charged mainly to two things, the age old original sin of the human race, carelessness and indifference; and insufficient training.

For the former there is no cure or prevention, for the latter much can be done.

The careless attendant, and the shiftless, indifferent unprogressive medical practitioner, will always contribute in large measure to high postnatal infant mortality. We must try to lessen his number constantly, by rigidly safeguarding and enforcing the high standards of modern medical education, and by giving the public every possible sensible information regarding infant care.

For the poorly trained practitioner, there is less excuse. His inadequate training may, however, not be altogether of his own doing and fault.

In many of our medical schools of today, too little emphasis is placed on good practical training in preventive pediatrics. In some of them the subject is not even a part of the curriculum.

It is clear that here lies one of the chief remedies of the situation. One that can be developed most effectively and that will then in time impressively influence our present high mortality figures. No medical practitioner of today should lack adequate training in preventive pediatrics, and know how to carry it out effectively.

In this rôle he will be the chief instrument at our disposal in lowering our present day high postnatal mortality. In the final analysis the responsibility rests really in his hands.

DEVELOPMENT OF MATERNAL AND EARLY INFANT CARE IN ITS RELATION TO A PUBLIC HEALTH PROGRAM

J. H. MASON KNOX, JR., M.D., PH.D.

Chief, Bureau of Child Hygiene, Maryland State Department of Health

AN efficient public health program must provide adequately for maternal and early infant care. This subject was to be presented by Doctor Felix J. Underwood of the State Department of Health of Mississippi. Doctor Underwood has been prevented from being present but in order that this part of the subject may be open for discussion, with your permission, the chair would like to emphasize some of the procedures, often a part of the public health program, intended to reduce early infant and maternal mortality.

Prenatal Care

It is becoming increasingly evident that the death rate among mothers and newly born infants can only be successfully combated when the care of the unborn infant is projected into the prenatal period and included in the adequate care of the mother, this care commenced as early as possible in her pregnancy.

In order to reach the mother, various means have been employed. The instruction of the community in general, particularly the women, in the importance of adequate prenatal care, and care of the expectant mother throughout her entire pregnancy has been urged upon all physicians doing obstetrical work not only by obstetricians but by State

and County Medical Societies and by Health Departments. In a number of states prenatal letters, each adapted to meet the difficulties that are apt to occur in each of the months of pregnancy, have been sent to expectant mothers each month

Prenatal Clinics

These have been carried on successfully in the large cities for a number of years and are beginning to be more generally employed even in rural areas. The object of the clinics is to make adequate prenatal care, including physical examination, within the reach of indigent mothers.

In some of the States the laboratory analysis of the urine of expectant mothers is carried on. The public health nurses are offering their services to practitioners and to midwives to visit expectant mothers and give them some advice and help them make arrangements that are necessary for delivery.

Natal Care

One of the principal responsibilities of a health department in regard to natal care is that each birth should be promptly registered, and if death of mother or child intervenes, this to be made a matter of record at once.

The regulations of the practice of midwives is usually in the Department of Health. In many of our states the midwives form a very perplexing problem.

It is questionable whether there are enough physicians in many rural areas in America today to deliver all the women. As it is well known, in most of the European countries delivery of normal cases is left largely to midwives or obstetrically trained nurses and it is possible that some such arrangement would help to reduce our high maternal mortality rate in America. A rural physician can hardly afford to wait at the bedside from six to twenty hours, often required for a somewhat protracted labor.

Everyone will agree that if the midwives are to be used they should be adequately trained, and there are very few places in this country where such training can be obtained. The obstetrically trained nurse such as is employed in England may bring the additional help needed

in certain parts of the country. It would seem, however, that perhaps to meet the average rural situation a trained midwife, resident in the district, working under the supervision of a physician and taking only normal cases, would help considerably to reduce our present high maternal and early infant mortality. It goes without saying that such a midwife could not make physical examinations and should call upon a physician in every case to make at least one physical examination of every patient for whom she is engaged and she should go on with the case only when there is likelihood of a normal delivery. It is hoped that additional maternity beds in county hospitals may somewhat relieve the situation, but apparently it is more difficult for the rural mother to leave her home during the birth of her child than for the mother in the city.

There is need of further information concerning the causes of maternal and infant deaths. In a number of States surveys of maternal deaths have been carried on recently. It would seem to be important that these surveys be continued each year and that they include also investigation of the causes of infant deaths so that we may know better where to place the emphasis in maternal and infant care.

In many States the official registration of the new-born infant is not reported to the local health officer early enough to render satisfactory care to the new-born baby. It is certainly advisable that some method be followed perhaps of notification of births as practiced first in Huddersfield, England, whereby within three hours a birth is reported. This could then be followed by a home visit on the part of the nurse to the mother if she is apparently in need of the visit. At no time is a mother more susceptible to encouragement and advice as to the care of her baby than during the first few days after it is born.

The Departments of Health, of course, are also interested in seeing that proper feeding advice and general care is furnished to older infants. In many States clinics or conferences on child hygiene are carried on not only in the cities but in rural areas, sometimes by the Health Department and sometimes by the County Medical Society or private organizations. The Public Health program for child hygiene cannot be considered complete unless sound advice is available for every indigent mother.

THE STATUS OF MATERNAL AND INFANT MORTALITY REPORT OF THE COMMITTEE

JULIUS LEVY, M.D.

*Director, Division of Child Hygiene, Department of Health,
Newark, New Jersey*

THE Committee on the Status of Maternal and Infant Mortality met on January 25, 1929, at the offices of the American Public Health Association.

The Committee's first business was a discussion in regard to the publication of the 1927-1928 Report. The Chairman informed the Committee that neither the American Public Health Association nor the American Child Health Association would print the Report in full in the *Journal* or the TRANSACTIONS. Efforts had been made to have the Report printed by the Commonwealth Fund and the National Research Council but without success. Under the circumstances it was agreed to have abstracts published in the Transactions of the American Child Health Association and in the Journal of the American Public Health Association with copies available in the offices for those especially interested. The Chairman had received a number of requests for this Report, with which he was unable to comply.

The American Child Health Association offered to assign one of its workers to develop Section 1, describing new child hygiene activities. At first it appeared that the statistical tables and charts on infant and maternal mortality would be prepared by the Statistical Department of the Metropolitan Life Insurance Company, but it later developed that they were unable to carry on this work for the Committee. Some of these statistical tables have been brought up to date by Dr Holland of the American Child Health Association and are included in the Report, which is available in the office of the Association.

Since the Committee was unable to obtain either funds or assistance for the statistical work from either of the organizations which created the Committee or from any of the national organizations and foundations, the Committee was unable to continue its studies. The Committee recommends that if the Association wishes it to continue

these studies and reports, provision must be made either in the way of a special fund or clerical assistance.

In the discussion of the Report last year, there was frequent reference by discussors of the Report to the deaths associated with the early periods of pregnancy and particularly to abortions. Many held that these deaths should not be charged either to the physicians who attended them at the hospitals or to the hospitals where they occurred. It would be interesting to investigate this particular phase of the subject thoroughly, but as the Committee was unable to do so, I am submitting data which was available on this phase of maternal mortality in Newark. It is reasonable to believe that the experience in Newark is representative of similar communities, although one would hesitate to generalize from this experience alone. It is so difficult, however, to obtain this particular kind of data that it seems worth while to submit it for consideration.

REPORT IN REGARD TO THE RELATION OF ABORTIONS TO GENERAL MATERNAL MORTALITY

We have carefully followed up the puerperal deaths in Newark during the years 1924, 1927, and 1928, with the following results:

Of the 232 puerperal deaths, we were able to determine the period of gestation in 212. The death certificates do not give the period of gestation and in some 20 cases the doctors upon inquiry were unable to recall the actual period of pregnancy. This would suggest the desirability of requiring on the death certificates the period of gestation. Including this fact on the death certificate will help to clarify the question of obstetrical and non-obstetrical deaths in relations to maternal mortality.

When we classify these deaths by trimesters of pregnancy, we find that 18.4 per cent occurred in the first three months and 30.2 per cent in the first six months of pregnancy. This is a very important fact to bring out in a discussion of the maternal mortality problem. It removes to a considerable degree the responsibility from the shoulders of physicians whose obstetrical skill is an important factor in deaths at or about term but cannot have such a considerable part in the deaths which occur during the first six months of pregnancy. In the three

individual years, the proportions varied with an apparent increase for each succeeding year. In 1924, the first trimester represented 14.6 per cent and the second trimester 12.2 per cent of the puerperal deaths; in 1927, the first trimester represented 25 per cent and the second trimester represented 5.9 per cent; in 1928, the first trimester represented 16.1 per cent and the second trimester represented 17.7 per cent. If we combine the two trimesters, which would seem desirable on account of the smallness of the figures, we find that in 1924 the first two trimesters represented 26.8 per cent of the total, in 1927 they represented 30.9 per cent of the total, and in 1928 they represented 33.9 per cent of the total. This would indicate that the deaths in the first six months of pregnancy have become a greater proportion of the total each year.

Now, what are the causes of these deaths which constitute about one-third of all the puerperal deaths? In the first trimester for the three-year period, abortions constituted 64.1 per cent and ectopic gestation 30.8 per cent of the deaths; in the second trimester, abortions constituted 56 per cent and the toxemias 28 per cent. Abortions were responsible for 20 per cent of the total mortality. Experience justifies us in doubting the accuracy of some of the reports which assigned the deaths to natural abortions and for practical purposes we are combining them under the heading of abortions. The number of years and the number of cases under consideration is too small to permit determination with any degree of definiteness of the question whether abortions are increasing or are responsible for a larger number of maternal deaths than formerly, still this data is suggestive. If we study the deaths in the first six months of pregnancy by causes for the three individual years, we find that the percentage of puerperal deaths in this period from abortions has practically remained constant, having been 59.1 per cent in 1924, 61.9 per cent in 1927, and 61.9 per cent in 1928. But in 1928, abortions formed a larger proportion of the total puerperal deaths than in 1924, though the number was about the same; that is, the total number of puerperal deaths decreased from 87 to 69, but the deaths from abortions were constant—about 13.

It seems reasonable to suggest, however, that a constant number

of deaths from abortions in these three years indicates probably an increase in non-fatal abortions. With the greater availability of hospitals and physicians, with wider knowledge of surgery and asepsis, it is reasonable to believe that the fatality rate in abortions is decreasing. The same number of deaths, then, suggests a greater number of abortions.

The deaths associated with ectopic gestation probably fall into the hands of gynecologists, surgeons, and general practitioners. The deaths associated with abortion similarly, whether occurring from a natural or artificial cause, fall into the hands of general practitioners in private practice and into the hands of physicians, gynecologists, and surgeons in hospitals. The obstetrician has had to bear for so long a time the onus of a persistently high maternal mortality that we are happy to have this opportunity to point out that the causes of this mortality cannot properly be made part of obstetrical responsibility.

If we subtract the deaths associated with the first two trimesters of pregnancy, we would be dealing with a group of deaths which more strictly are associated with obstetrical care and management. I thought it would be interesting to determine the maternal mortality for this group. In 1924, there were 87 deaths. Of this number, we were able to determine the period of gestation in 82. Sixty occurred in the third trimester, giving a maternal mortality of 5.0 per 1,000 deliveries. In 1927, there were 76 deaths, of which we were able to determine the period of gestation in 68. Of this number, 47 occurred in the third trimester, giving a maternal mortality of 4.5 per 1,000 deliveries. In 1928, there were 69 deaths, of which we were able to determine the period of gestation in 62. Of this number, 41 occurred in the third trimester, giving a maternal mortality of 4.0 per 1,000 deliveries. It would appear from a comparison of these three years if we omit the maternal deaths associated with the first six months of pregnancy, there has been since 1924 a decrease in maternal mortality of 20 per cent. It appears, however, that even if we omit puerperal deaths associated with abortions, there is still a high maternal mortality. This is made clear by contrasting the maternal mortality for these three years during the third trimester

alone with the entire mortality of certain other countries. In 1920-1924, the maternal mortality rates in Spain, England, Wales, Japan, and Finland were below 5, and in Italy, Sweden, Norway, and Netherlands they were below 3 per 1,000. Later reports show lower maternal mortality rates for Japan, Italy, Finland, and Sweden with slightly increased rates for Norway and Netherlands for the years 1924-1927.

I wish to call attention to another fact presented by these statistics. It appears that the proportion of deaths of women under 20 is coming to constitute a larger proportion of the total puerperal deaths. In 1924, they represented 4.6 per cent, in 1927, 6.6 per cent, and in 1928, 17 per cent. It also appears in Newark that the number of births to the early age group has increased. This is particularly true among the colored, where in 1924 the group under 18 constituted 5.3 per cent of the colored mothers giving birth to their first children, in 1927, 6.5 per cent, and in 1928, 7.4 per cent. Among the whites, the group under 18 represented 1.0 per cent in 1924, 1.1 per cent in 1927, and 1.0 per cent in 1928. Since the maternal mortality has been found to be three and four times as high in the age group under 15 and somewhat higher in the age group under 20 than in the age group between 20 and 30, we believe the increase in the proportion of first births to mothers under 18 will make for a higher maternal mortality. It would seem that future reports on maternal mortality should consider this factor in making comparison with previous years or in comparing different countries or communities.

SUMMARY

1. Maternal mortality in third trimester of pregnancy has decreased since 1924.
2. This mortality is still high in comparison to other countries
3. Abortions cause 20 per cent of the maternal mortality.
4. One-third of the maternal mortality is associated with the first six months of pregnancy.
5. Abortions cause 60 per cent of these deaths (deaths in the first six months).

RECOMMENDATION

It is recommended that State Registrars be requested to obtain the following information as supplementary report for all puerperal deaths: (1) Number of previous pregnancies. (2) Period of gestation at time of death. (3) Was there any previous attendant—doctor or midwife? If the patient died in the hospital, did the delivery or abortion occur at home or in a hospital? Was there any previous attendant—physician or midwife?

NUMBER OF PUERPERAL DEATHS BY AGE GROUPS

Age	1924	1927	1928
Under 18 years.		1	4
18-20 years	4	4	8
Total, all ages ..	87	76	69

PUERPERAL DEATHS UNDER 18 YEARS OF AGE BY COLOR

	White	Colored	Total
1924. ....		..	..
1927 ...	1	..	1
1928 ...	3	1	4

NUMBER OF PUERPERAL DEATHS BY TRIMESTERS

Newark, New Jersey, 1924, 1927, 1928

Trimester	Year			Total
	1924	1927	1928	
1.. ..	12	17	10	39
2 . . .	10	4	11	25
3 . . .	60	47	41	148
Unknown	5	8	7	20
Total.. ..	87	76	69	232

NUMBER OF PUERPERAL DEATHS BY TRIMESTERS AND BY CAUSES, 1924, 1927, 1928

Cause	1924				1927				1928				Total			
	Trimester			Total	Trimester			Total	Trimester			Total	Trimester			
	1	2	3		1	2	3		1	2	3		1	2	3	
Ruptured Ec Gestation	4	..	1	5	4	..	4	8	4	..	2	6	12	..	7	19
Natural	3	2	..	5	6	1	..	7	3	4	1	8	12	7	1	20
Criminal.	3	3	1	7	5	..	1	6	2	2	..	4	10	5	2	17
Puer. Sept.	1	1	15	17	1	..	7	8	1	1	6	8	3	2	28	33
Toxemia	1	..	2	3	..	1	1	2	1	1	3	4	1	2	6	9
Eclampsia .....	..	2	12	14	..	1	2	4	..	..	8	8	1	3	22	26
Nephritis .....	..	1	5	6	..	1	2	3	..	..	2	2	..	2	9	11
Hemorrhage. ....	..	1	9	10	..	..	5	5	..	..	6	6	..	1	20	21
Cesarean Sec. ....	..	..	4	4	..	..	5	5	..	..	1	1	..	..	10	10
All Others .. .	..	..	11	11	1	..	20	20	..	3	12	15	..	3	43	46
Total	12	10	60	82	17	4	47	68	10	11	41	62	39	25	148	212

BIRTHS UNDER 18 YEARS BY COLOR AND PRIMIPARA

	Number	Number Primipara	Per cent Primipara
1924—White	10,610	109	1.0
Colored	834	45	5.3
Other Colors	5		
Total	11,449	154	1.3
1927—White	9,020	103	1.1
Colored	1,018	67	6.5
Other Colors	4		
Total	10,042	170	1.7
1928—White	8,722	91	1.0
Colored	1,080	80	7.4
Total	9,802	171	1.7

LIST OF REFERENCES TO SELECTED STUDIES

September 1928 — September 1929

United States

Analysis and Tabular Summary of State Laws Relating to Illegitimacy in the United States, in Effect January 1, 1928, and the Text of Selected Laws. Marietta Stevenson, Ph.D. United States Department of Labor, Children's Bureau, Chart No. 16. Washington. 1929. 49 p. Single copy free.

Correction of Infant Mortality Rates for Residence, The. Dorothy G. Wehl, Division of Research, Milbank Memorial Fund, New York City. American Journal of Public Health and the Nation's Health (New York) 19:495-510. May, 1929. Summary in Milbank Memorial Fund Quarterly Bulletin (New York) 7:41-50. April, 1929.

Results of a study in Cattaraugus County indicate the importance of correcting infant deaths and births for residence.

Factors and Causes in Maternal Mortality. R W Holmes, M.D., University of Virginia; R. D. Mussey, M.D., Rochester, Minnesota; and Fred L. Adair, M.D., Minneapolis. Journal of the American Medical Association (Chicago) 93:1440-1445. November 9, 1929.

This paper includes the authors' summary of the results of the investigation of 2,650 puerperal deaths in 12 states, carried on under the direction of the Children's Bureau, United States Department of Labor, through whose courtesy the data were released. "Some information relative to all puerperal deaths during 1927 for New Hampshire, Rhode Island, Maryland, Virginia, Kentucky, Michigan, Wisconsin, Minnesota, North Dakota, Nebraska, Washington and Oregon" is given.

Maternal Mortality in the United States. Dorothy Reed Mendenhall, M.D., Madison, Wisconsin. Medical Journal and Record (New York) 130:407-408. October 2, 1929.

A statement as to a study now being made by the United States Children's Bureau in cooperation with State Departments of Health and State Medical Societies in New Hampshire, Rhode Island, Virginia, Kentucky, Michigan, Minnesota, Wisconsin, North Dakota, Washington, Oregon, Alabama, Mary-

land, and Nebraska (all maternal deaths occurring from January 1, 1927, to December 31, 1928). and in Oklahoma and California (1928 maternal deaths only). The author tentatively concludes that "deaths following abortions contribute in a large degree to maternal mortality in the United States and particularly to maternal mortality from sepsis."

Maternal Mortality Study in Michigan—Preliminary Report. Guy L. Kiefer, M.D., D.P.H., Michigan State Health Commissioner. Journal of the Michigan State Medical Society (Detroit) 27 597-604. September, 1928.

A progress report of a study of 619 maternal deaths occurring in Michigan between July 1926, and July, 1928, conducted by the Michigan Department of Health in cooperation with the State Medical Society.

Maternity as a Public Health Problem. Matthias Nicoll, Jr, M.D., New York State Commissioner of Health. American Journal of Public Health and the Nation's Health (New York) 19 961-968. September, 1929.

The Presidential address delivered before the State and Provincial Health Authorities, presenting proof of the value of prenatal care in reducing maternal mortality.

Midwife's Relation to Our High Maternal Mortality, The. Winifred Mallon, Children's Bureau, United States Department of Labor. Trained Nurse and Hospital Review (New York) 82 765-768. June, 1929.

This summary indicates the position of the midwife in various sections of the United States and makes a plea for her better training and supervision.

Obstetrics and Gynecology in Public Health Program. Jennings C Litzenberg, M.D., Minneapolis. Journal of the American Medical Association (Chicago) 91.1587-1589. November 24, 1928

Possibilities for reduction of maternal mortality by prenatal care and a policy of non-interference during labor

Problem of Reducing Mortality Associated with Childbirth, The. Frederick W. Rice, M.D., Department of Obstetrics, New York University and Bellevue Hospital Medical College. New York State Journal of Medicine (New York) 29:262-267. March 1, 1929.

A review of progress in midwifery and obstetrics shows the need for improved teaching of obstetrics and better training of nurses and midwives.

Sex Factor in Infant Mortality, The. Harry Bakwin, M.D., New York City. Human Biology (Baltimore) 1 90-116. January, 1929.

A comprehensive study of the mortality sex ratio.

*The following may be secured from the Government Printing Office,
Washington, D. C.:*

Birth, Stillbirth, and Infant Mortality Statistics for the Birth Registration Area of the United States, 1926. Part I. Summary and Rate Tables and General Tables. United States Department of Commerce, Bureau of the Census. 1929. 253 p. 60 cents.

Birth, Stillbirth, and Infant Mortality Statistics: 1925. Part II. Text and Text Tables. United States Department of Commerce, Bureau of the Census. 1929. 76 p. 15 cents.

Mortality Statistics, 1926. Part I. United States Department of Commerce, Bureau of the Census. 1929. 430 p. \$2.00.

Summary and rate tables and general tables for the Death Registration Area in continental United States with supplemental statistics for Hawaii and the Virgin Islands.

Mortality Statistics: 1925. Part II. Text and Text Tables. United States Department of Commerce, Bureau of the Census 1929 169 p. 25 cents

The text includes an analysis and discussion of deaths from puerperal causes.

Sixteenth Annual Report of the Chief of the Children's Bureau, Fiscal Year Ended June 30, 1928. United States Department of Labor, Children's Bureau 1928 53 p. 10 cents.

The following may be secured from the American Child Health Association, 370 Seventh Avenue, New York City

Experience of the Maternity Center Association with Special Reference to the Tioga County Work, The. Hazel Corbin, R.N., General Director, Maternity Center Association, New York City Transactions, 1928 p 38-45

Report of a prenatal nursing demonstration in a rural county

Improving the Value of the Infant Mortality Rate as an Index of Public Health Effort. Dorothy F. Holland, Ph.D., Staff Associate, and George T. Palmer, Dr.P.H., Director, Division of Research, American Child Health Association. American Journal of Diseases of Children (Chicago) 36:1237-1249 December, 1928 Also Transactions, 1928. p. 73-88.

Experimental predictions of infant mortality rates of 93 cities from known values of significant demographic factors.

Report of the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association. Carl Henry Davis, M.D., Attending Obstetrician and Gynecologist, Columbia and Milwaukee County Hospitals, Milwaukee, Wisconsin Transactions, 1928. p. 26-36.

Suggestions for the improvement of obstetrical training and practice.

Report of Sessions on Maternal Mortality in the Conference of State Directors of Maternity and Infancy Work, United States Children's Bureau, April, 1928. Blanche M. Haines, M.D., Director, Division of Maternity and Infant Hygiene, Children's Bureau, United States Department of Labor. Transactions, 1928 p. 10-23.

The author discusses declines in rural maternal mortality rates in certain states following the adoption of the Maternity and Infancy Act, and gives progress reports of the maternal mortality studies in Michigan and New York

Report on Status of Maternal and Infant Mortality by the Child Hygiene Section Committee of the American Public Health Association. Julius Levy, M.D., Consultant, Bureau of Child Hygiene, New Jersey State Department of Health. Transactions, 1928. p. 1-10.

The complete report, which may be seen in the office of the American Public Health Association, 370 Seventh Avenue, New York City, is here outlined. Selected statistical charts are included. The statistical section of the report is also abstracted in the American Journal of Public Health and the Nation's Health, February, 1929, p. 225-228; three additional charts on maternal mortality are reproduced in the Child Health Bulletin, January, 1929 p 15-19.

Important Causes of Infant Mortality, The. Richard M. Smith, M.D., Assistant Professor of Child Hygiene, Faculty of Medicine and School of Public Health, Harvard University. Child Health Bulletin (New York) 5:97-109. July, 1929.

A consideration of the effect of heredity and environment on the medical causes of infant mortality.

Statistical Report of Infant Mortality for 1928 in 729 Cities of the United States. American Child Health Association 1929. 27 p. Chart and Discussion.

Great Britain

Infant Mortality. *International Inquiry of the Health Organization of the League of Nations, English Section.* Report by Dame Janet Campbell, D.B.E., M.D., M.S.; with Statistical Notes by Peter L. McKinlay, M.D., Ministry of Health, Reports on Public Health and Medical Subjects, No 55. His Majesty's Stationery Office, London. 1929. 118 p. 1 shilling

The results of an inquiry into the causes of 1,083 still-births and infant deaths carried out in four selected districts, namely, Sunderland and parts of rural Staffordshire (representing a high death rate) and Croydon and Oxfordshire (representing a low death rate), from the beginning of March, 1927, to the end of February, 1928.

Maternal Mortality. *Report on Maternal Mortality in Aberdeen, 1918-1927, with Special Reference to Puerperal Sepsis.* J. Parlane Kinloch, M.D.; J. Smith, M.D.; and J. A. Stephen, M.B. His Majesty's Stationery Office, Edinburgh, 1928. 1 shilling. Abstract in *Child Health Bulletin* (New York City) 5 118-122. July, 1929.

Detailed record of the 252 maternal deaths during the ten years, and tentative deductions.

Memorandum Outlining a National Maternity Service Scheme for England and Wales. Supplement to the *British Medical Journal* (London), p. 258-262. June 29, 1929.

Details of a plan proposed to the Representative Body of the British Medical Association and approved by vote on July 19, 1929. (See Supplement to *Journal* of July 27, 1929, p. 66.)

On the State of the Public Health. *Annual Report of the Chief Medical Officer of the Ministry of Health for the Year 1928.* His Majesty's Stationery Office, London 1929. 295 p. 3 shillings.

The section on Maternity and Child Welfare discusses maternal welfare, maternity services, ante-natal clinics, their conduct and scope, maternity beds, committee on training and supply of midwives, maternal mortality committee, infant and child welfare

Racial Variation in Relation to Infant Mortality in the Four Principal Scottish Towns. Hilda F. Menzies, M.D., D.P.H., Health Department, City of Aberdeen. *Archives of Disease in Childhood* (London) 4:33-46. February, 1929

A study of infant mortality statistics of Aberdeen, Dundee, Edinburgh and Glasgow for the period 1856-1926.

Registrar-General's Statistical Review of England and Wales for the Year 1928, The. Tables. Part I Medical. His Majesty's Stationery Office, London. 1929. 500 p 15s. 0d

Infant mortality, birth, stillbirth and death rates.

International

Report on the Work of the Conference of Health Experts on Infant Welfare, Held at Rome, on March 25-28, 1929. League of Nations, Health Organization, Official No.: C.H 779. Geneva. 1929. 8 p.

A brief report of the results of a medical, social and public health investigation of infant deaths and stillbirths occurring during 1927 in 29 urban and rural districts of six European countries. Recommendations for the prevention of infant mortality are presented.

A STUDY OF MATERNAL AND INFANT MORTALITY IN BOSTON

C F. WILINSKY, M.D

Director, Beth Israel Hospital, Boston

MANY studies have been made, a great deal has been written, and much has been said on the subject of Maternal and Infant Mortality. It is fitting indeed that with the increasing appreciation of the potential possibilities in the field of disease prevention as well as the constantly growing interest and emphasis placed on the economic value of child health as a potential factor in our nation's progress, that child health programs should be expanding sufficiently to justify the belief and expression that this is indeed the "Century of the Child."

Much has been accomplished in the past twenty-five years in the field of life saving. Thirty infants more out of every thousand born twenty-five years ago died before the age of one than do today. Infant mortality rates of 100 were very prevalent while today an infant mortality rate of over 70 reflects seriously upon local child health efforts.

The reduction in maternal mortality has been far from satisfactory, in fact, almost negligible. Toxemias of pregnancy and sepsis are causing many unnecessary deaths and are compelling most serious thinking.

Is everything possible being done for the protection of the lives of mothers and new-born babies? In what possible direction should additional effort be made? Just what can we do to further reduce these deaths from so-called preventable causes? For the purpose of arriving at an intelligent conclusion, a study of some facts and figures bearing upon the past and present situation appears necessary.

A study of the maternal and infant death rate for a period of years reveals certain definite trends. We find, for example, a marked reduction in infant mortality under one year. This reduction is particularly marked in the period after one month of life, with only a slight reduction below one month, and a negligible reduction under one week. A study of the most prevalent causes of death under one year emphasizes a marked reduction from gastric diseases. On the other

hand we find very little reduction in deaths from prematurity, injuries at birth, and congenital malformations. This typical picture of the status of infant mortality in the United States is found to prevail in a marked measure in Boston, as evidenced by the following tables.

BOSTON'S MATERNAL AND INFANT MORTALITY

Table I shows the trend of maternal and infant mortality in Boston during the past ten years.

Table II is a picture of infant mortality by certain causes.

Table III is an analysis of infant deaths under one month by certain causes.

TABLE I
TREND OF MATERNAL AND INFANT MORTALITY
Boston, 1918-1928

Year	Maternal Deaths	Maternal Mortality	Infant Deaths		Infant Mortality Rate
			Under One Year	Under One Month	
1928.. .	126		1,446	677	77.1
1927. . .	141	7.2	1,455	731	76.3
1926.....	137	7.1	1,575	789	84.5
1925.....	125	6.5	1,582	800	85.1
1924.. .	150	7.3	1,472	799	74.4
1923.. .	137	7.0	1,569	816	82.5
1922.....	156	8.1	1,720	827	92.7
1921.....	149	7.4	1,499	789	77.2
1920.....	157	7.8	1,966	894	100.8
1919.....	135	6.9	1,818	846	96.8
1918 ..		6.6			

TABLE II
INFANT MORTALITY BY CAUSES
Boston, 1919-1928

Year	Injuries at Birth	Congenital Malformations	Premature Birth	Gastric Diseases
1928.....	116	171	341	200
1927. . .	136	190	361	214
1926. . .	104	193	361	213
1925.....	127	195	367	138
1924.. .	114	192	381	149
1923.....	131	171	355	128
1922.....	104	185	373	191
1921.....	118	175	320	180
1920.....	119	201	300	313
1919.....	112	193	345	302

TABLE III
DEATHS UNDER ONE MONTH BY CAUSES
Boston, 1918-1927

Cause	1918		1919		1920		1921		1922	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Prematurity	440	21.93	328	17.46	294	15.08	306	15.77	348	18.76
Congenital Malformations	98	4.88	131	6.97	133	6.87	114	5.88	124	6.68
Injuries at Birth	100	4.98	107	5.70	114	5.85	116	5.98	99	5.34
Total	638	31.79	566	30.13	541	27.75	536	27.63	571	30.78
Total All Causes	924	46.1	846	45.1	894	45.8	789	40.6	827	44.6

Cause	1923		1924		1925		1926		1927	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Prematurity	348	18.30	357	18.05	349	18.77	338	18.13	331	17.36
Congenital Malformations	107	5.62	121	6.12	128	6.88	124	6.65	120	6.79
Injuries at Birth	125	6.57	110	5.56	121	6.51	100	5.36	125	6.55
Total	580	30.49	588	29.73	598	32.16	562	30.14	576	30.20
Total All Causes	816	42.9	799	40.4	800	43.0	789	42.3	731	38.3

ANALYSIS OF TABLES I, II AND III

A study of the tables in reference to infant mortality presents the following definite conclusions:

1. Infant mortality rate as a whole has decreased materially although not yet comparable to low prevalent rates in other countries and some parts of the United States
2. Material decrease is evident after one month of life, with only a slight decrease between the first day and first month.
3. Deaths from prematurity have decreased slightly.
4. Deaths from injuries at birth have increased in Boston.
5. Death rate from congenital malformations has increased slightly

The combined death rate from the above three causes was 42.7 per cent of all the infant deaths under one year, 1928, in Boston. This was the highest percentage in the past ten years while the general infant mortality rate was comparatively low.

MATERNAL MORTALITY

Boston has an unenviable maternal mortality rate, varying in the last ten years from a low of 6.5 in 1925 to a high of 8.1 in 1922. The rate for 1927 was 7.2 (it is only fair to point out that many expectant mothers with very serious complications are brought to

Boston's Lying-In Hospitals from all over New England at the last possible moment, in many instances only to die, these deaths being charged to Boston).

We find toxemia and sepsis, two avoidable causes, playing very important parts in the causes of death in connection with labor.

PRESENT STUDY

Boston, with its lying-in hospitals of excellent reputation, its medical profession comparing favorably with other urban communities, its prenatal clinics, and its infant and preschool age health services, comparable in standards to the best in other cities, may well be said to offer as a whole a program which ought to play a prominent part in the saving of lives of mothers and new-born babies. With all that Boston has had to offer yielding apparently unsatisfactory results in life saving among certain groups it was deemed important that a study of the situation was justifiable. It was agreed that no study could be expected to yield satisfactory conclusions without the active support, assistance and cooperation of the medical profession engaged either in private practice or in connection with lying-in hospitals. To further this plan, the following procedure was adopted.

A committee was organized composed of the director of the Child Hygiene Program and the Boston Health Department, the professors of Pediatrics at Harvard, Tufts and the Boston University Medical School, the professors of obstetrics at the above institutions, and a representative of the Harvard School of Public Health. Preceding the study a letter addressed to the medical profession as a whole and signed by the above group asking for the support of the medical profession in this proposed study was published in the *New England Journal of Medicine*.

Since January 1, 1929, copies of infant and maternal death certificates have been submitted at the earliest possible moment by the health department to Harvey Stuart, M.D., Assistant Professor of Child Hygiene of the Harvard School of Public Health, who is in charge of this study. These certificates cover all stillbirths and deaths occurring during the first five months of life. This age period was chosen as being likely to include more if not all deaths directly due

to intranatal causes (exceptions in the congenital defect and syphilitic group being recognized). One hundred and eighty-seven certificates thus submitted were deaths obviously due to acquired disease, and therefore were set aside as irrelevant to the study. Sixty-seven were deaths obviously due to gross congenital defect, and undoubtedly not dependent upon known ante or intranatal causes. A classification of this group follows:

Heart disease	30
Anomalies of brain and spinal cord....	18
Malformations of gastro-intestinal and genito-urinary systems	5
Laryngeal stridor.....	2
Gross monsters.....	11

The remaining 386 deaths formed the material for a study of possible antenatal or intranatal causes. This study is to be continued at least through the year 1929, but the following is a brief preliminary report of the findings for the first half of the year.

A form was prepared including such questions as seemed of possible significance as affecting the infant, and answers to which might reasonably be expected to be obtainable. Though covering three typewritten pages, this questionnaire could be answered briefly and simply. The items covered in the questionnaire which is marked "confidential" are as follows:

Name of Deceased and Residence

Previous Pregnancies: year of 1st, 2nd, 3rd, 4th, 5th, 6th

History of Following in Any Pregnancy: toxemia (or kidney trouble), miscarriage or abortion, other complication of pregnancy, complications of labor (instruments or other operation), infant still-born or premature, birth injury or other infant abnormality

Prenatal Care Given by You in This Pregnancy: month of pregnancy first seen, frequency of subsequent visits at which blood pressure, urine and abdomen were examined

General Physical Examination: abnormal findings at first visit (do not include obstetrical here), at subsequent visits (month of pregnancy)

Abdominal Examination: (obstetrical)

Pelvic Measurements: month of pregnancy taken, any abnormalities

Wassermann: month of pregnancy taken, result

Blood Pressure Readings

Urine Examinations

Fetal Heart Sounds or Movements Last Noted (if stillborn)

Other Findings (note severe headaches, pernicious vomiting, convulsions, vaginal bleeding, and intercurrent diseases and give month of pregnancy of occurrence)

Other Prenatal Care: (if by other physician or agency give name and address)

Mother's Living Conditions: would you approve our visiting home to learn in detail of mother's life during pregnancy?

Labor and delivery: hospital or home? if at home, were conditions satisfactory? period of gestation; did any accident or illness precede or possibly contribute to early labor? (if so, specify and include here rupture of membranes, premature separation of placenta and placenta previa); was labor induced? give cause and method; was pituitrin used? in what stage? indication, were you present at delivery; duration of labor: give approximate time of each stage, 1st, 2nd, 3rd; presentation; difficulties encountered (indicate in what stage); were forceps used? in what stage? indicate extent of use; type and duration of anæsthesia; any other operative procedure (give type and indications for); was fetus macerated? was heart beating at time of delivery? what attempts, if any, to resuscitate baby? what was the outcome for the mother? other pertinent information

Newborn at Birth and During Subsequent Life: weight, breathing, heart, nursing, cyanosis, cry, nervous system irritation, toxemia or sepsis, anæsthetic effect, infection, paralyses or injuries, congenital defects or malformations, autopsy finding, any other information which might throw light upon contributory or immediate cause of death, or prove of special interest; in case further information should seem important, in this case, would you afford us an interview?

Signature

Of the cases to be studied, 143 occurred in the wards or on the district service of the four larger hospitals of the city (Boston Lying-In Hospital, Boston City Hospital, Carney Hospital and Massachusetts Homeopathic Hospital). Permission was obtained at these four hospitals for the investigators to obtain the information called for in this questionnaire directly from the hospital records. Of the 143 deaths in these hospitals, records have not as yet been available on 15, thus 128 deaths are reported at this time from this source. Four deaths during the period apparently fall into the group of those due to antenatal or intranatal causes, but no reports are available because of no medical attendance at birth.

The remaining 240 deaths were reported by private physicians or smaller hospitals, and an attempt to investigate these was made by mailing a questionnaire directly to the physician signing the death certificate as soon as possible after its receipt. Of these 240 questionnaires, only 116 have thus far been returned. An attempt is being made to secure reports on a greater number of these deaths, but it does not appear likely that this number will be greatly increased. It might be noted that this figure represents less than 50 per cent of the deaths reported, as compared with 80 per cent of returns obtained by the New York State Department of Health in a somewhat similar investigation for the year 1925. The figures are not exactly comparable as the New York State figures were entirely based upon private physicians' reports, whereas our figures include some hospital deaths in the smaller hospitals of the city. A correction, however, for this difference would apparently not alter the percentages appreciably.

The following data is, therefore, obtained from a study of 128 hospital records, and questionnaires returned from practicing physicians on 116 cases, or a total of 244 deaths and stillbirths.

Prenatal Care

From the hospital records it was usually possible to determine how much prenatal care had been given by the institution, and the record often specifically denied that there had been any other prenatal care; but in many cases it was impossible to determine whether any

private physician or outside agency had given such service. As to the number of visits made by the pregnant woman to the hospital clinic, or to her physician, the following information was available: Of 244 records studied, 64 or 26 per cent had no prenatal care (definitely specified); and in 30 more, no record of prenatal care would be found. Thus in 94, or about 40 per cent of these deaths there was probably no prenatal care. Twenty-nine had less than one month under observation, and 51 had less than three months, giving a total of 80, or roughly 32 per cent under observation less than three months of pregnancy. The great majority of these were seen about once a month during the time of observation. In 16 cases it was stated that patients had prenatal care, but no details as to the duration, type, and so forth, were given. Only 50 cases, or about 20 per cent were under observation for three months or more of the period of pregnancy. Most of these were seen once a month in the early months of pregnancy, and twice a month in the later months. From these figures the general observation may be made that only 20 per cent of those cases studied had been under medical supervision for a reasonable period. Furthermore, this 20 per cent figure would be very materially lowered for the general city if the group cared for in one or two of the larger hospitals having active prenatal clinics were withdrawn. These figures only refer to the number of visits, and tell nothing of the type of prenatal care given. In general, the records suggest that whenever a pregnant woman was seen, urine examinations, blood pressure readings and abdominal examinations were made. Wassermanns were rarely taken except in the larger hospitals. Pelvic measurements were not at all regularly reported.

The conclusion seems inevitable that with the exception of the larger hospitals where prenatal clinics are well organized, and a few private physicians, prenatal care given to mothers whose babies were born dead, or died in the first weeks of life, was entirely inadequate when compared with the usual accepted standards for such prenatal care. The following figures are of interest as suggesting preventive possibilities: 3 of the deaths were diagnosed congenital syphilis; 17 deaths were associated with toxemia in the mother; 33 deaths were associated with dystocia. These figures while proving nothing,

strongly suggest that more adequate prenatal care would have prevented a number of the deaths being considered.

Care of the New-born

In the study of the data presented regarding the newly-born baby, it is very apparent that many of these failed to receive adequate attention from the physician in charge. Many were apparently never examined. A normal routine was ordered for some whose condition obviously required special care. Under this heading might be mentioned babies ordered to the breast every three or four hours, whose condition had been recorded as poor, and a few of whom died at the breast, or directly after nursing. Prematurity was often given as an explanation for failure to examine the baby, when on the basis of weight and number of weeks premature, it should have been expected to survive. A study of the birth weights of infants whose death certificates gave prematurity as the only cause for death, leads one to believe that there were other factors present in many of them. In a number of instances the infant was apparently sent to the nursery without any comment that its condition was not satisfactory, to die within a relatively short period without any adequate explanation. It is our belief that the newly-born infant requires more prompt and thorough examination, and more individual medical attention than is often given; but our records regarding the short periods during which these infants survived are so inadequate that more specific conclusions cannot be drawn.

The Period of Labor and Delivery

For the purpose of studying the part played by difficult labor as a cause of infant death, the records of our intranatal and postnatal cases were studied in a separate group. Those obviously dying because extremely premature, or from recognizable disease were eliminated from this group in the beginning. The information available from the records was inadequate in many cases to give a very clear idea of the actual course of labor. In many cases even the total duration of labor was not noted, and in only a small proportion was the length of the second stage specified. It is of interest to note, however, that in this group of 115 cases, 24 were allowed to remain in the second

stage of labor more than two hours, 5 of them being reported in this stage more than six hours. Of the total, the time given for the duration of labor was more than forty-eight hours in ten instances. A very large proportion of those left without interference for an unusually long time in labor were ultimately terminated by forceps delivery. In many of these, this forceps delivery was noted to be easy. It is very difficult to determine whether the cerebral injury resulting in some of these cases was due to the long labor itself, or to the application of forceps. We are inclined to believe that in some, at least, an earlier application of forceps was indicated. It must be borne in mind that injuries resulting from hard labors in which forceps are ultimately used, cannot be assumed to be due to forceps application. It may be that many cases are attributed to forceps delivery which should more properly be attributed to delay in instituting procedures which are clearly indicated.

As to pelvic measurements and their usefulness when taken during the period of pregnancy, we have the following figures: In 58 cases measurements were taken and reported to be normal. In most of these the actual measurements used were not specified, simply the generalization made. In 11 the measurements were reported to be abnormal in one or more particulars, in a number of which the course of pregnancy and labor were allowed to progress normally, and but a few of these were taken as indication for cesarean section. It is of particular interest that out of this group representing the difficult labors, 48 apparently had had no prenatal measurements made. Analyzing these 115 deaths probably associated with labor and delivery, we find that 25 were reported as normal vertex deliveries; 18 were breech presentations (and in most of these some difficulty was reported); 4 were precipitate deliveries, and there were 15 other abnormal presentations, many of which required version and extraction. There were fifteen cases of version and extraction (some of these were because of abnormal presentation while others were because of prolapse of cord, bleeding, and so forth). In the total number of deliveries there were 11 instances of high forceps, 16 of medium or low forceps, and 3 instances in which forceps were used but the stage not noted, all of these being on vertex presentations. Thirteen of the

total of thirty-three breech extractions required the application of forceps to the aftercoming head. Delivery was either induced or hastened in 12 cases because of placenta previa or other bleeding, 10 cases because of prolapsed cord, and in 5 cases because of the mother's condition. Twelve cesareans were performed, most of them before the onset of labor because of definite indication, and the death of the infant in most of these cases being due to prematurity.

A group of cases in which forceps delivery was carried out were examined to see whether previous obstetrical history, or pelvic measurements gave sufficient indication to suspect difficulty, and also to determine whether there was any apparent unnecessary use of forceps. The past natal history showed that of 42 cases of forceps delivery reviewed, 18 were primiparas. There were 5 cases in which previous dystocia had been noted, and 4 in which other previous difficulties had been encountered. Seventeen of the 42 had not had pelvic measurements made. One had had such measurements and funnel shaped pelvis was noted, the remaining cases were examined and reported normal. As to the length of labor prior to the application of forceps, 11 of the 42 had been in the second stage more than two hours, 5 for six hours or more. Ten had been in labor more than twenty-four hours. The following are the reasons given for the use of forceps:

Placenta previa.....	1
Premature separation placenta.....	2
Prolapse of cord.....	3
Toxemia	1
Long, sluggish labor, or difficult progress...	18
(In two of these high sacral promontory was noted and two others definitely abnormal pelvis.)	
Abnormal presentation.....	10
No reason given.....	7

From the data presented in this study we find no evidence that neonatal deaths are occurring in Boston because of unwarranted application of forceps or induction of labor. The tendency seems rather toward delay in instituting these procedures, and in subjecting the infant to unnatural labor.

The indication for the 12 cesareans were as follows:

Eclampsia	2
Premature separation of placenta	3
Placenta previa	2
Ineffectual labor	1
Chronic cardiac	1
Previous cesarean	3

MATERNAL DEATHS

The following table shows causes of death from January 1st to July 1st, 1929. The causes of deaths were taken from death certificates without special investigation because of another investigation on sepsis being conducted by the Massachusetts Medical Society.

TABLE IV

MATERNAL DEATHS

BOSTON, JANUARY 1 TO JULY 1, 1929

Pulmonary oedema and cardiac dilatation	1
Heart disease	3
Pneumonia	4
Puerperal septicemia	7
General peritonitis	4
Ruptured extrauterine pregnancy	2
Premature separation of placenta with hemorrhage	2
Postpartum hemorrhage	2
Embolism	4
Ruptured uterus	1
Eclampsia	1
Ruptured uterus following induced labor and extraction because of placenta previa	1
Cesarean section without contributory cause noted	1
Cesarean section with paralytic ileus	1

No detailed study has been made of these deaths owing to a similar investigation being made at the present moment by the Massachusetts Medical Society. The causes appear to be quite typical and closely related to usual causes.

CONCLUSIONS

1. The absence of adequate prenatal service in 89 per cent of 984 maternal deaths in Massachusetts as revealed in a study made by Dr Coffin of the State Department of Health must be regarded as something besides just a coincidence. The same study also revealed the fact that septicemia, toxemia and hemorrhage were responsible for 58 per cent of the deaths, from these avoidable causes.

2. The importance of early prenatal service as a factor in the reduction of infant and maternal mortality seems evident. In the study of the above group it appears that in the instance when expectant mothers have availed themselves of this service that this has not been done early enough. The greatest chance of improvement seems to lie in this field, and we may look in a marked measure to proper hygiene of pregnancy as a means of reduction in deaths from toxemias.

3. The question of long labor is a debatable one. We are faced on the one hand with the constant admonition of leaving as much as possible to nature, and with frequent protests against cesarean sections and other operative interventions. On the other hand, long tests of labor are bound to result in a fair number of stillbirths. The judgment of the obstetrician is the determining factor in the course to pursue, and is of course markedly dependent upon his obstetrical skill and sound judgment.

4. There must be developed a keener appreciation of more adequate care of the new-born. It is apparent that they require more prompt examination and more individual medical attention than they are now given as a rule.

5. We cannot overlook the apparent and very frequent evidence of inadequate obstetrical training revealed in what appears to be too many unnecessary deaths of infants from prematurity and injuries at birth, and to mothers from toxemia and sepsis. Surely the average

physician must have been taught the principles of asepsis and there should be no excuse for deaths from this preventable cause. Since it is agreed that medical supervision ought to play an important part in recognizing the danger signs of pregnancy and labor it seems rather pertinent to quote from an address by the chairman of obstetrics and gynecology at the meeting of the American Medical Association held in Minneapolis in 1927: "If the family physician who cares for at least 80 per cent of pregnant women will give adequate prenatal care, diagnose carefully, be meticulously aseptic, and be careful of the dignity and demands of obstetrics, baby and maternal mortality will drop. There are enough lives lost which cannot be saved by known medical science. May no more be added by neglect."

THE WELL BABY CLINIC IN THE OFFICE OF THE FAMILY PHYSICIAN AND PEDIATRICIAN

E J HUENEKENS, M.D.

Director, Infant, Preschool Work, Minneapolis Infant Welfare Society

WHEN the Minneapolis Infant Welfare Society was organized in 1910 for the purpose of conducting well baby clinics, the economic status of the parents was not considered, and any infant was welcomed. In fact an intensive educational campaign was conducted so that parents might learn the value of such care. The number of new babies admitted increased with each year until 1922 (see Table No. I). In that year, due partly to our own investigation (Table No. II) and partly to the protests of the organized medical profession, our policy of admitting all infants who applied to the clinics was changed. Thereafter parents earning \$135 a month with only one child and with no outstanding debts or obligations were not eligible to clinics and were referred to their family physician or pediatrician for well baby care. We feel that in the long run this is the fairest policy for an organization dependent on the Community Fund for support. Even though in some cases injustice is

done to the individual infant needing well baby care, either through unwillingness of parents to pay for this service, or indifference of the physician to whom they are referred, we believe sound policy dictates that the private physician should perform this service and that such cases should no longer be charged to community expense. In time the physician who is now ignorant of or indifferent to preventive well baby care will find himself obliged to give such service, especially as the younger medical graduates have received intensive training in this type of work. To open the eyes of this ignorant or indifferent type of physician is our greatest problem. The following are verbatim quotations of physicians as told by mothers to our nurses:

"No need to bother with any doctor when the baby seems O. K."

"No need of physical examination."

"Clinic doctors are too fussy about babies."

"No use to come so often unless the baby is sick; I haven't time."

"Give him anything that agrees with him. Why experiment?"

"Use your own judgment; if breast milk does not agree with the baby try some other kind of milk."

These remarks should show why many parents are unwilling to pay for service which does not give them the information and assistance obtained from the free clinics.

The following is a report of a survey made in 1921 by the Minneapolis Infant Welfare Society:

Group: 100 cases discharged from Infant Welfare Clinics because the nurse felt that the income of the family was enough to provide for this care by private physician.

Purpose: To find out how many of these 100 cases have consulted private physicians as advised by the nurse.

Type of Wage Earner: Included professional men, as dentists, teachers, ministers, experienced businessmen as department managers, salesmen, bank tellers, skilled mechanics and tradesmen.

Salaries: Range from \$125 per month with one child to \$350 per month with four children. Salaries alone cannot be taken as an estimate as the number of children and expenses will vary with every family.

Result: Thirty-eight mothers are consulting private physicians regularly. Of the 38, 17 are consulting a family physician, 21 are consulting a pediatrician, 62 are not consulting any doctor.

Special Points: Sixty-seven mothers said that they had a family doctor, 26 had none, and 7 were doubtful. (By family doctor we mean a regular physician to whom the family would turn in case of illness) Thirteen cases plainly showed the need of special care other than that received from the family doctor. Eight cases showed family physician did not care to cooperate with the clinic doctor if the mother was referred to him. Five mothers frankly said they wished to go to a pediatrician but did not like to offend the family doctor. Three mothers went a few times and said they found it too expensive. Three felt that they must make payments on home and furniture and could not afford it.

A similar survey is now in the making and should show a larger percentage consulting their physician and should also show a better type of care being given by the doctors.

While I have discussed the relationship of the infant welfare society and private physicians in terms of our local policy, do not get the idea that it is a purely local problem; on the contrary, infant welfare societies all over the country are battling with the same difficulty and the final solution is yet to be found. However, I believe that the best answer is for the private physician to undertake this work. If some of them do it bunglingly at present, we must give them more time. The training of older physicians has been so exclusively in the care of the sick that even such obvious preventive measures as vaccination against smallpox and the inoculation with toxoid or toxin antitoxin for the prevention of diphtheria seem unimportant and unnecessary.

In our private practice, my associate and I give well baby care as follows: The infant is brought to the office about once every month for the first nine months, then every two months until thirteen months old, every three months for the balance of the second year and thereafter twice a year, up to the school age. The baby is weighed each time and accurate record kept of gains or losses. For the first six months the mother is shown how to nurse her baby, is taught how to express her breasts if the supply runs short; if artificial milk is necessary exact directions are handed her. In these days of comparatively simple milk mixtures, it is not necessary to send a nurse into the home to demonstrate the preparation of milk formulas. The mother is directed when to start orange or tomato juice for the prevention of scurvy, and also when to begin cod-liver oil or viosterol for the prevention of rickets.

During the second six months instructions are given as to cereal and vegetable additions to the diet, so that by the time the infant is ten or twelve months old, it is on three meals a day, and a fairly well mixed diet. During this time also the baby is vaccinated and given toxin antitoxin, the latter followed in six months by a Schick test. Through the second year the diet is expanded so that by the end of this period the child is receiving all digestible foods in varied preparations.

For the first year the charge for this service if given regularly is about two-thirds of the fee for the casual office visit.

During the entire five-year period mental hygiene instruction is given. The too indulgent or sympathetic mother, the over-stern father or the nagging parents are dealt with by personal talks and by the required reading of simple and popular books on child training, such as Thom's *Everyday Problems of the Everyday Child* and Blanton's *Child Training*. Conflicts in methods of discipline between parents are ironed out with varying success and sane sex instruction is urged. The trying problem of anorexia or poor appetite is explained in all its ramifications and early preventive measures along the lines suggested by Aldrich are undertaken. We feel very strongly that proper mental hygiene instruction undertaken very early and carried on through this

entire five-year period will prevent many serious problem cases of later years.

This is a rough outline of our procedure and we believe if this program is thoroughly and intelligently carried out, preventive well baby care can be given fully as well by the private physician as by the Infant Welfare Clinic.

TABLE I
MINNEAPOLIS INFANT WELFARE SOCIETY
Number of Babies Admitted 1912-1928

Year	Resident Births	Infant Mortality Rate	Number New Babies Admitted During Year
1912	6,953	75.2	200
1913.	7,124	85.3	371
1914.....	7,989	83.4	629
1915	8,522	71.1	1,014
1916	8,778	82.4	1,362
1917.	8,660	71.6	1,407
1918	8,689	72.0	1,722
1919	8,133	64.6	2,321
1920.....	9,182	65.2	2,735
1921.....	9,436	55.9	3,074
1922.....	9,548	53.0	2,659
1923.....	9,712	53.8	2,559
1924.....	9,751	53.4	1,738
1925.....	9,423	60.8	1,698
1926	9,192	56.3	1,515
1927	8,620	46.5	1,398
1928.....	8,348	51.0	1,416

TABLE II
REPORT OF 220 INVESTIGATIONS 1922-1923

Income per month (in 29 cases or 13.1 per cent the baby was ill or the father was unemployed)

Number of Children	Less than \$100		\$100-\$115		\$116-\$125		\$126-\$135		\$136-\$150		\$151-\$175	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
1.. . .	33	15	29	13.1	26	11.8	8	3.6	2	.9	1	.4
2.. . .	11	.5	12	5.4	11	5	2	.9	4	1.8	2	.9
3. . .	2	9	6	2.7	6	2.7	4	1.8	3	1.3	3	1.3
4 or more	5	2.2	8	3.6	3	1.3	4	1.8	5	2.2	1	.4
Total .	51	23.1	55	25	46	20.4	18	8.1	14	6.3	7	3.1

WHAT SHOULD CHILDREN BE TAUGHT TO BELIEVE

ARTHUR E. MORGAN

President, Antioch College, Yellow Springs, Ohio

DURING the recent controversy between church and state in Mexico, one of the church authorities emphasized the unchanging religious commitment of the Mexican peasantry by saying, "They gained their religion at their mothers' breasts."

It is a wise saying. The Russians have a similar one, "What comes in with the milk, goes out only with the soul." The strongest of all human instincts, stronger than the desire for food or for reproduction, often stronger than the passion for life itself, is the desire to hold tenaciously to those values handed us by the past.

Often there is a lack of unity in early teaching. The example of the parents may conflict with their precepts, both of these differ from the example of playmates, and these again from church and school. In such cases there is a range of choice. But where there is no conflict in early teaching, the lessons learned in infancy and early childhood as a rule become the unchanging beliefs of the life, so set in the very structure of the mind that they seem nature itself, and cannot be distinguished from instinct.

Whoever, therefore, captures the mind of the child controls the beliefs and opinions of the next generation. Throughout history the desire to capture and to fix the child's mind has almost always been considered legitimate and even laudable. It has been held to be proper so completely to isolate the child from conflicting points of view, and so definitely to give his mind its set, that at maturity he will be safe. This attitude has been held with reference to religion, national patriotism, family and class loyalty, and, as in the case of the socialists, to economic philosophy.

We may state the actual working philosophy of mankind with substantial accuracy as follows: Eliminating cases of outrageous perversion of prevailing morality, the mind of the child is proper booty for whoever can first reach and capture it; provided that certain vested rights are recognized, chiefly those of parent, community, church, and state.

The beliefs with which it is recognized to be the vested right of these preferred claimants to indoctrinate childhood are most diverse and conflicting, regardless of the fact that this early indoctrination generally means servitude to these ideas for life. I think it would be safe to say that 99 per cent of the adherents of some religious sects are sons and daughters of adherents of the same sects. And yet truth is one. Catholicism is not the real truth on one corner of the street, Presbyterianism on another, and Christian Science on the third. So long as the established policy is to isolate the mind of youth from every other outlook, and so to fix its mind with certain beliefs that a change in later life can seldom take place, approach to the truth will be slow and greatly hampered, and men's minds will be under servitude as surely as their bodies would be if they were marked with deep scars during infancy.

But there is another side to the problem. This tendency of men to adopt and to hold to whatever is learned in infancy is, on the whole, not an evil, but one of the most valuable and necessary of human traits. Through the indoctrination of infancy and youth we have the continuance and preservation of good habits, of skill, of manners and customs. By the time the early years are past, those accomplishments are second nature, and mind and attention are free to attack the problems of mature men and women. Indoctrination is the chief asset of civilization.

Is there any way in which we can preserve the infinite advantages of early indoctrination, and yet keep the freedom of mind which will leave the way open to the truth? That is a major problem of civilization. I believe there is such a way, and that its general adoption would open the path for an increasing unity of opinion among men at a far more rapid rate than any we have experienced in the past. Would not the following principle be a safe guide for all teachers, whether they represent the parents, the church, or the state?

The indoctrination of young minds should be limited to those matters on which there is reasonably substantial agreement among intelligent, educated men of serious purpose. On matters concerning which there is widespread and substantial conflict of opinion, the mind of childhood and youth should be scrupulously left uncommitted, and

should be given freedom to arrive at an opinion when the years of discretion are reached.

"But," it is objected, "are there any policies and principles on which there is such general agreement?" I believe there are. We can nearly all agree that the right human attitude is to live and work for the general good, and in a spirit of good will, and not for oneself alone. There may be differences of opinion as to the best methods of applying this principle, some even holding that one often makes his best contribution to society when he finds most complete self-expression. However, there is substantial agreement on the general principle, and its indoctrination from childhood will not result in any conflict of opinion and belief among normal, intelligent, and educated men

Another principle of general acceptance is that the purposes of life can best be fulfilled if health is preserved and the integrity and vigor of body and mind are maintained.

A third principle on which general agreement may be secured is that of the value of integrity in dealing with our fellows. Integrity is essentially economical and beautiful, and in this belief great minds have been in general accord.

A fourth principle, on which there is reasonable unity of opinion, is that it is good to strive to know the truth.

A fifth principle is that all principles of life must be applied with reference to their interaction, and with a sense of relative values. No one can be pursued as being itself the only good. These principles, with a thousand obvious applications, can be indoctrinated in children from infancy.

One cannot eat his cake and keep it too. The capacity of childhood and youth to give interest and attention is definitely limited. The attention we spend on one object we cannot give to another. We cannot use our resources in indoctrinating highly controversial beliefs without spending the time and opportunity which might have been used in inculcating these unquestioned universals. If all the force and emotion of example and precept were spent in indoctrinating youth with these universally accepted attitudes, instead of overlooking them while we indoctrinate highly controversial matters, the general moral

and spiritual tone of the rising generation would be enormously improved.

I hold that parents, church, and state are the guardians of youth, and not its owners. Childhood has a right to freedom of its mind as well as to care of its body. When it grows to man's estate it should be free from permanent scars on its body or permanent malformations of mind. We have no right to exploit the mind of childhood, and to give it almost irremediable commitment on controversial matters is to do just that. I hold it to be the fundamental duty of every parent, every church, and every community conscientiously to limit its indoctrination of childhood to those matters which have general approval.

Any institution, which tries to isolate the mind of childhood from any outlook but its own, and which tries to indoctrinate its own highly controverted outlook so completely that the child can never free himself from it, that institution is fundamentally immoral.

The same principle holds true in the teaching of history and patriotism. Only the accepted universals should be indoctrinated. The attitude that one should have regard for the life of the group over and above his own, is universally approved; but to couple with it the doctrine that Germans are better than French, or vice versa, or that America is always right, that is immoral, because highly controversial.

We have here a fundamental principle. No theological sophistries and no political chauvinism can prevail against it. If our churches will once face the issue and decide whether this standard is sound, they will have a basis of measurement for their actions which will be incisive and far-reaching.

Their faith in its usefulness for them will measure their actual faith in their own creeds. Any one who genuinely believes in the truth or wisdom of his creed will approve this principle. He will believe that his doctrines, being true, must profit by the universal application of this principle, because his own doctrines will have access to the open and uncommitted minds of many mature men, already grounded in the universally accepted principles of right living.

There will be no sharp boundary lines between controversial and non-controversial beliefs. Before Copernicus, a belief that the sun moves around the earth was almost universal, and indoctrination in

that belief was normal and proper. When many intelligent men began to accept the Copernican theory, the old doctrine was no longer of general acceptance, and an attitude of neutrality was proper in teaching young children. Today the question is settled, and indoctrination in the belief that the earth is round does not conflict with general conviction. In this case we see the cycle of normal change completed.

In the matter of special creation versus evolution, while scientists almost universally accept the latter view, I believe that so long as a large part of the population holds to a contrary belief there should be no haste in assuming the issue to be settled. In the present condition of opinion, young children should be taught that the matter is in question, and that they must decide it for themselves in their mature years. It is perfectly proper to report the state of belief among men who have studied the matter, and the undisputed facts of biology may be taught at any age. The same conscientious refraining from indoctrination should be exercised by those who believe in special creation. By such methods we would make rapid progress toward unity of belief.

But suppose some of the principles now universally accepted and indoctrinated are mistaken? How, under such a program, will we ever arrive at new truth? The principle I have stated is a sound one, but it must be supplemented by another sound principle—that among mature minds free questioning and inquiry shall always be encouraged.

The more virile minds will feel out weaknesses in prevailing beliefs. If they secure general support for new outlooks among intelligent and educated men, the principles in question will no longer be generally accepted, but will be recognized as controversial, and indoctrination of youth therein will be out of place until a new consensus of opinion is reached.

In conclusion, the mind of the child does not belong to those who have power over him, to be given an unchangeable set in controversial matters. These people are his guardians, not his owners. Their business is to indoctrinate him in habits and customs and convictions convenient for living and substantially universally approved. Beyond that the child's mind must be free. It belongs to himself and to his race, to be given form and bent during years of maturity, in accordance with the weight of evidence and of reason.

DISCIPLINE AND CHARACTER MAKING

MARY DABNEY DAVIS, PH D

*Specialist in Nursery, Kindergarten and Primary Education, Bureau of Education,
United States Department of the Interior, Washington, D. C.*

THE infinite quality of life is expressed in activity. This is common to animals as well as to mankind but man's prerogative is to guide his activity through his thinking. He exists at the standpoint of opportunity—of opportunity to elect his acts and to guide them with his thinking.

Living with others also endowed with the ability to think and to act, man is continually faced with problems. Conflicting situations arise with almost every gesture. There is a constant struggle between the urges of the individual for self-expression and self-completeness and the demands of society for conformance to set standards and controls for group welfare. It is a case of "I want" against "You must." What happens? A conflict arises. The individual attempts ways and means at his disposal to gain his end. Society may countenance this effort for a time, but eventually disciplines the individual. The way in which this individual profits by experience determines the character patterns he forms.

One problem seemingly of paramount importance is this,—“How can I be happy? How can I have a sense of completeness—of success in life?” Happiness and success come with an ability to get along with people. Too seldom do we ask,—“Is there any rule for getting along with people? And if there is, what is it going to cost me in adjustments and effort?” Consciousness of the need for a rule for motives and acts, expressed in these questions, is a step in progress. Ability to project one's thinking beyond a desire for immediate satisfaction is a more advanced step in progress. It is only through such thinking that behavior controls are possible. Through the use of these controls, individuals can build those qualities of character which make them socially valuable.

To understand why we act as we do, we need a definite knowledge of certain principles of behavior. Our ideas of why and how behavior

is controlled have changed during the past generation. Formerly, prescribed patterns of behavior were didactically imposed upon children by those of greater chronological and physical strength. Little importance was placed on what young children were trying to accomplish through their undesirable acts, or upon what they were thinking, and the social attitudes they were building. Punishment was imposed because a child had committed an offense. This punishment had little concern with reformation of the child's habits and seldom substituted a more acceptable type of conduct.

Discipline has lately been throwing off the implication of punishment and has been taking on its real meaning of education. Webster defines it as the "treatment suited to a learner . . . to develop the faculties by instruction and exercise," and among the synonyms are the words instruction and culture. Such a definition invites participation in life instead of suppression of natural drives to activity. Habits of behavior form the structure which determines character. Used in the original meaning of education, discipline is concerned with the newer methods of initiating children into social life. Instead of building habits which make the child reliant on superior authority, there is an appeal to both adults and child for active thinking and for making mutual decisions. Instead of insisting upon acceptance of blanket standards for all social situations, there is now an appeal for analyses of mental and environmental causes and influences upon individual behavior. By removing afflictions rather than inflicting them, discipline, in its meaning of education, removes narrowing self-consciousness and develops social consciousness. It uncovers such negative character traits as evasiveness, impatience, retaliation and ignorance. It replaces these with such positive character traits as honesty and respect for others' personalities. It helps to remove fear.

This briefly covers the point of view we shall follow in discussing discipline and character making. The idea of individual controls of behavior, self-administered, is the thesis of our discussion. This idea is not limited to expression in overt acts but goes deeper into the thinking and feeling which give rise to acceptable or undesirable behavior. We can now discuss in more detail the elementary drives to behavior, the causes of undesirable behavior and the methods of

developing habitual social reactions which will contribute to desirable character formation.

ELEMENTARY BEHAVIOR DRIVES

Realizing that there must be some fundamental causes for behavior, scientific observation points to the fact that every human being and every race has survived because of certain universal drives directing activity. Behavior is not merely a matter of caprice. It is an attempt to adjust a developing organism to a highly refined and superimposed society of customs and morals.

Previous conceptions of discipline disregarded individual motives and desires. They imposed behaviors to bring instantaneous and complete conformity. Through this well-meaning but blind attempt at guidance those in control forced types of behavior upon children which interrupted the natural outlet for activity. In addition, they gave this activity no other form of expression and thereby forced it back within the individual. With any individual, adult or child, the lack of a natural outlet for activity causes conflicting situations which result in grave behavior difficulties and in social disturbances.

Therefore, if we are to understand the newer meanings of discipline we can well afford to analyze three fundamental drives of activity. These drives are the desire *to do*, the desire *to have*, and the desire *to be*. They presuppose a readiness to act which is characteristic of man's creative dynamic nature. They are apparent in each individual at all age levels in greater or lesser degrees. In the normal individual they are all present. To understand why we act as we do it is necessary to recognize these fundamental urges for self-expression. To provide proper environments in which children may fully develop, it is necessary to understand how these drives for activity may be appropriately expressed and guided to prevent excess or loss, and to assure success and satisfaction in acceptable behavior.

The experimental, manipulative interest of young children is an expression of their drive "to do." At this age the activity is mostly physical and through it children discover their own muscular power and the qualities of things they handle. With the adult the strength of this drive may develop into a problem of selection among many

interests. On the other hand, the lack of the drive in adult life may require stimulation to create interest. In childhood this desire "to do" needs guidance and development so that the possibility of individual apathy may be lessened. Such guidance also may help avoid the present tendency among people to undertake more vocations and avocations than can be carried on with thoroughness and dispatch. Most decidedly this drive acts as the motive power for opening the door of opportunity through which man becomes acquainted with the varied interests and possibilities of life.

Collecting, accumulating and hoarding are some of the expressions of the behavior drive "to have." There are also less tangible forms of expression such as desires for recognition, for a feeling of security, and for a sense of power and strength to achieve. It is from these desires, expressed in less material form, that the greatest difficulties and the need for social adjustments seem to come. However, the desire "to have" is an essential factor in the development and the welfare of every individual. It is responsible for urging the initial drive "to do," and, when successfully met, acts as an important factor in unfolding the richest meaning of the drive "to be."

The successful expression of this drive "to be" depends upon the satisfaction with which the drives "to do" and "to have" have been met. Every well-adjusted individual accomplishes something as a power for good. In childhood, interest is centered upon self. As true individuality develops, this consideration of self as of primary importance is replaced with a more universal love and a compassion for all mankind. Bertrand Russell defines four essential qualities of character for the good life,—vitality, courage, sensitiveness and intelligence. These qualities have been demonstrated in the lives and the achievements of many men and women in the fields of industry and philosophy, invention and discovery. And the ultimate goal for true being has been set in the life of Christ who gave the rules for motives and acts in his Sermon on the Mount.

CAUSES OF UNDESIRABLE BEHAVIOR

A misunderstanding of the elementary activity drives is, perhaps, the most frequent cause of undesirable behavior. Blocking these

drives produces individual behavior that is negative, unproductive and socially unsatisfactory. Emotional upsets interfere with right progress. These upsets are frequently caused by conflicts between the child and the adult or between the individual and his environment. The adult insists upon the reluctant child shaking hands with a stranger or repeating some remark for the benefit of a visitor. The parent or the teacher may neglect to give the boy or the girl responsibilities that give him a feeling of ownership and security. Prematurely forcing a self-conscious control of behavior removes the interest and the dynamic quality of activity and produces too early in a child's life a point of diminishing returns.

There are certain automatic behaviors which are required for the safety of individuals and society. For example, traffic regulations, laws of sanitation and respect for public property. Penalty for violation of these rules and regulations can best be defined as punishment. It takes the form of fines and deprivation of liberty. Knowing the unpleasant outcomes of such violations or recognizing the justice of the laws, immediate behavior adjustments are made arbitrarily. In some cases, however, there is no permanent change in behavior habits. Adjustments generally considered to be on a higher level are made from the motives of social approval and of satisfaction in living up to principles of social relationships which have been intelligently accepted. Violations of these rules of behavior so established, bring their own unpleasant experiences of ostracization, of losing the possessions desired, and of self-dissatisfaction. Both the imposed adjustment and the thoughtful type of social adjustment must become a part of every child's education. For a teacher, a nurse or a parent to steer a path between thwarting spontaneous activity and directing it toward accepted social standards is a piece of artistry which requires an understanding of the fundamental factors in behavior.

The following illustrations serve to indicate the results of blocking these fundamental behavior drives and suggest the educative discipline needed for both the adult and the child. In both cases there is a desire to have personal recognition. An undersized, stubborn boy of eight in a third grade expressed little or no ability in his school work. Whatever stimulus the teacher used to arouse his interest resulted in

sullenness and resentment. One day he asked if he could work with some sixth grade boys on an auditorium program. Grateful for this glimmer of interest in school activities he was encouraged to go ahead. His part in the program was a display of physical prowess. He walked on his hands,—on a level platform and up an inclined plank. He turned cartwheels and backward somersaults with perfect muscular control. Having no real insight into behavior drives the teacher wondered why it hadn't occurred to her to find out how that boy could excel. Needless to say the recognition he received for his skill in motor control was a stimulus to school achievements that had begun to appear as hopeless.

In a second instance a boy could get no recognition from his parents. Things he made at school were hastily brushed aside in the hurry of the parents' program and no praise was given. Help which he gave at home was taken as a matter of course and no special effort was commented upon. After a time, still hoping for recognition, perhaps unconsciously, the boy thought of something more spectacular to do. With other boys he built a fire which soon spread to his father's back fence. A whipping was given which, so far as the child could see, was undeserved. This resulted in a strong sense of resentment and in acts of deception. Last winter the father took the boy to a behavior clinic for examination,—and all for the loss of merited recognition.

In these two instances there are different outcomes. The first is positive and leads to future self-initiated effort. The second is more negative and requires a new start in life relationships for both the boy and the father. Individuality must be expressed. Adequate recognition of it is essential and, without undue emphasis upon it, develops a sense of social freedom and a feeling of confidence commensurate for the attack upon a new undertaking. Such confidence can then carry one over those experiences in which there is no expression of appreciation and in which the worth of the work itself must provide satisfaction for the individual.

A redirection of interest, or the substitution of a new activity, helps to correct definitely undesirable behaviors. Success and satis-

faction with the result are necessary, however, to assure the beginning of desirable habit formation. Two incidents illustrate these points.

A child of three, Dicky, is absorbed in the play equipment of his nursery school. On his first day at school his method of getting the fire truck he wanted was to use physical force to unseat the child playing with it. When that proved unsuccessful, he resorted to biting. According to rules of conduct for this unsocial act, Dicky was at once isolated a few feet from the other children, but within clear view of everything that was going on. An explanation was given that he could not get the fire truck by that method, and a substitution was offered of asking for it or of waiting until it was not in use. The cost in this case was not only the immediate loss of playing with the truck, but also of social ostracization. Two days later, Dicky wanted a swing and started to make his former overtures. Reaching the swing he pulled at the hands of the child seated there. Not succeeding in disengaging them, he prepared to bite. Then he hesitated, looked up at the child, smiled, and walked away.

The second illustration is of a supervisor of elementary grades in a city school system. He attended a summer session at a university and returned home bursting with the idea of having all the schools adopt an activity type of curriculum. He had, I believe, two motives,—one to be the sponsor of a new movement, and the other to give children an improved type of school experience. He wanted to call the teachers together, make a general announcement about the changes that are taking place in methods of teaching, ask the teachers to read some books on the subject, and change, rather automatically and immediately, their whole philosophy and method of teaching. To change from directing groups of children to guiding them, and from being able to rely on prescribed techniques of managing children by routine programs to soliciting their cooperation in classroom procedures is a difficult transition. The superintendent of schools saw that no one was ready for this reversal of techniques in school management. Teachers, children and parents were uninitiated. Forcing the new program would bring resentment, confusion and criticism and there would be no platform of common understanding established. Success and happiness were out of the question for everyone. However, a

delay of a school year during which the supervisor's enthusiasm was directed to explaining and demonstrating the values of an activity curriculum, eventually brought success.

Aside from redirecting activity and offering desirable substitutions, these two incidents also illustrate the satisfaction which may result from deferred successes. The child waited to use the play apparatus he wanted, and the supervisor waited to put his plan into operation. However difficult this may be, it is necessary to learn how to project thinking and to accept present solutions of a difficulty in the light of future fulfillment.

Another means of correcting social difficulties is to remove any feeling of insecurity. In any new environment there is an element of unfamiliarity which tends to dislodge many habitual modes of acting. One feels strange, he doesn't know where to go nor what he is expected to do. In such a situation young children often cry and cling to anybody or anything which seems at all familiar. This crying and clinging is often incorrectly interpreted as a strong devotion for the home or the parent. The interpretation often starts a smothering response of affection from the parent. It should, instead, call for a sane introduction of the child to elements in the new environment that are similar to those at home.

With adolescent youths, insecurity is frequently expressed by embarrassment, awkwardness, boisterousness or inertia. Any one of these acts may lead to difficult social conflicts. A remedy for this difficulty is to give a boy or girl a sense of oneness with and likeness to the group with whom he plays. Give them responsibilities and ownership of property in keeping with their abilities and then recognize their achievements.

In situations calling for any form of discipline, the stability of future desirable habits is determined by present satisfaction with acceptable behaviors. It is not possible then to permit a child to have a sense of defeat from which there is no recourse. No condemnation which inhibits renewed effort can be imposed by the child himself or by the group of children. There can be no sense of social differences nor distinctions which make a permanent feeling of isolation from the social group. The environment itself should be used to influence

behavior instead of citing errors performed. Such procedures prevent the forming of such character traits as stubbornness, persistent antagonism, deception, dishonesty or a retreat within oneself which engenders self-pity, self-condemnation and morbidity. Such suicidal states of thinking cannot enter a situation where correction of behavior starts with an understanding of natural desires for activity and obtains the intelligent cooperation of the child himself.

Summing up this discussion, one realizes that man is born to be active. That there are certain elementary drives controlling behaviors and that these are not confined to any age level. The discipline which guides these behavior drives is a matter of education. It is a building up process and not a breaking down process. Habits of acceptable behavior result. Qualities of character identify the individual. Character formation is an infinite matter, a matter of continual adjustments,—adjustments based on principles, the significance of which unfolds progressively.

We exist at the standpoint of opportunity. What use shall we make of this opportunity in our own thinking and in the way we act with our peers and in those situations which we control and in which other active human beings are concerned?

WHAT CONSTITUTES MENTAL HEALTH IN THE PRESCHOOL CHILD

H. E. CHAMBERLAIN, M.D.

Director, Child Guidance Clinic, Board of Education, Minneapolis

MEDICAL interest in the diseases of the body is of early origin, and the evolution of medical treatment reads creditably. But medical interest in the diseases of the mind has yet to begin and the recorded treatment of mental disease is far from being creditable. In fact, not until medical interest was extended from the study of disease to include a broader concept, the study of health, has much consideration been given to either mental disease or mental health. Furthermore, it appears to have been the past endeavor of medical men to conceive of the body and mind as two parts or separate entities

which ultimately, with persistent effort, could be dissected one from the other and so treated. The study of health is tending to prove otherwise, that they are one, and that in the treatment of physical defects and disease serious consideration must be given to the mental condition of the patient, and that in the treatment of any mental defect or disease painstaking attention must be given to the physical condition of the patient

The study given to health has done more. It has aided us to think not only of organs, systems and appendages of the human body, but also of the complex and delicate relationship in the proper functioning of these organs, systems and appendages. In regard to children, the study of health has made two distinct contributions. First, it has shown the notion to be false that whatever happens to a child is soon forgotten or forgiven. Second, that the mental life of a child has its frustrations or ambitions, its sorrows or joys, its urges or strivings thwarted or gratified much the same as has the mental life of an adult. It is timely then that we discuss what constitutes mental health in the preschool child (three to five years of age).

The developing mind is commonly referred to as plastic, and both mind and body are impressionable. These traits of development, plasticity and impressionability, assist in the establishment of mental health in the preschool child and are utilized, sometimes with too much zeal, by adults in the care and treatment of children.

Mental health is herein understood to mean the normal condition and functioning of mind and body. It is dependent primarily upon the permanence of those early habits which will assure for one's adulthood stability of uninjurious conduct, sustained effort in gainful and acceptable pursuits and a satisfying relationship to others.

Since the preschool child is of an age in which he is dependent upon others, and since the mind is plastic and impressionable, it is essential to mention that adult physical and mental states and adult behavior must be reckoned with in whatever constitutes mental health in the child. For the mental development and health of the child rests largely upon suggestibility, imitation and curiosity satisfaction. By these channels are the habits of adults, in part, acquired by the child. Whether it be a parent, a nurse maid or a nursery school teacher

upon whom the child is dependent, it is imperative that their example be worthy of emulation lest the child's mental health be impaired. The tone of the voice, the expression of the face, the gesture of the hand of the adult are as vital to a child's mental health, as vital to his ultimate habits as is the temperature, the ventilation, the light or quiet of the nursery.

Actually, the maintenance of mental health, even at this early age, is fostered or engendered as much by what the child feels, sees, hears, smells or tastes, in other words what he experiences, as what he thinks he experiences. We believe that what one experienced in early life and apparently has forgotten is after all really not lost but retained to influence our acquisition, retention and utilization of knowledge, our judgment, our entire personality and related conduct in adulthood. Whether or not this is a fact or later will be proved to be unfounded, it has done this much. It has lifted out of the limbo of the occult and of the supernatural a responsibility which medical art and allied sciences have long been tardy to assume. We have dared to delve farther in our interest in health, and have found in innumerable instances that the most important factor in mental health is not what a child has experienced or thought to have experienced or has apparently forgotten, but that it is the association he attaches to experiences, actual or imagined.

Along with the health and attitude of the adult who is in direct relationship in the care of the child, the preschool child's mental health is dependent upon the early acquired habits, by training, to attend to body functions regularly and readily. This means for the child to partake of food without difficulty, to be continent and to control himself in large or gross motor activity. The most common factors which interfere with the establishment of these proper habits related to body functions are: (1) adult instability as evidenced by impatience, impulsiveness, anger, and vacillating moods; (2) impaired physical or mental state of the child by disease or defect.

In the preschool age the evidence of mental health may be observed by the presence of a few undisguised attributes. The healthy child need not possess all of them necessarily to be so classified; nor, on the other hand, need the absence of any one attribute herein listed stamp

any child as unhealthy. Furthermore, any one attribute can be variable in intensity from day to day. For some it is best that the intensity be variable and not fixed. These attributes can be unequal or several may coalesce together and mask another and still the child be healthy. All that is required to favor mental health in the preschool child is that not one of the following attributes be stamped out but instead be moderately fostered.

We who have children to rear or to supervise into robust health do well when we first sanction motor activity, activity at times wearisome to behold. The likelihood of the development of tantrums or adverse habits related to pent-up energy is most remote if provision is made for the expenditure of the motor energy of robust health in the preschool child. With understanding and patience, conscientious adults can more easily direct or curb excessive activity with less risk or deleterious effect to the child than can they stimulate a laggard to gratifying activity.

Self-consciousness, not present in the infant, comes to the forefront in the preschool age. To the doting parent oftentimes this attribute is troublesome and embarrassing. Whereas before the child was either passive or pleased to be shown off to relatives or guests, he now hangs back behind the door or the table. Once delighted to sing-song a nursery rhyme or repeat the names of awed onlookers, he now refuses in the presence of others to even say his own name or utter anything more than a snicker or a throaty "I don't wanta." 'Tis better to accept this self-consciousness as a passing phase, to make little of it and by no means, by threat or bribe, cause it to be more conspicuous or irritating than is warranted and thereby cause it to be more deeply ingrained in the child's make-up.

In the preschool child self-assertiveness literally takes root. The better the child's health is, the more apparent will his self-assertiveness be. Adults are short-sighted, extremely so, if they become alarmed or apprehensive in the presence of self-assertiveness in one as young as the preschool child. With self-assertion the child hangs on to his playthings and the adult sees therein the seed of selfishness of all adult mankind. The child will struggle to do that which has been forbidden and though it be another expression of self-assertiveness, to the adult

it is offensive, for it savors of a rooted rebellion to authority. Or perhaps the child in self-assertive manner appropriates the toys or possessions of others and the alarmed parent or teacher, ever fearful of the thefts of cherished property by adults, makes a distinction far too critical for this early age to comprehend. For a child not to be self-assertive, flagrantly so, in the preschool age is to be suggestive of physical enfeeblement or mental retardation. Wise adults will encourage self-assertiveness early in the child and not term it selfishness, rebellion or a propensity to thievery. Wiser adults with care will leave the modification of self-assertiveness to acceptable playmates and not be unduly apprehensive of the potential handicap of marked self-assertion. The wisest adults know that in harshly thwarting early self-assertion does this attribute take to subterranean routes of apathy, shyness and whining.

The mental health of the preschool child is maintained as much by curiosity as by any one other attribute. The "whys" and the "whats" at first, then later perhaps now and then a "how." One cannot afford to ignore them nor to weary of their increasing repetition if both development and mental health are to persist. The more baffling they are, the more persistently put they are—these "whys" and "whats"—the greater is the mental health likely to be. But if this curiosity of the preschool child is looked upon as shameful, vulgar or obscene, or nonsensical, irritating or embarrassing to the parent, maid or nursery school teacher, then had they best seek for themselves counsel from a reputable mental hygienist or leave the child to the care of others better qualified and less apt to suggest faulty and injurious ideas to the young.

The healthy preschool child will begin to make choices in regard to inanimate objects. He will show preference to certain playthings or toys and should be permitted to do so. First, it is usually related to the familiar. Research under way at the present time seeks definitely to ascertain the preference shown by children of this age in regard to color, textures, sounds, motility, and so forth of inanimate objects. Whatever is finally established to be the norm, we do believe for the present that in this age the act of choosing is a constituent of mental health.

Another attribute of vital importance to mental health in the pre-school child is the initial discovery of the imagined and reality features of life. Many adults, ill-treated in childhood, never gain the ability to distinguish between the imagined and the real. In childhood a vivid imagination should be looked upon as a sign of good health and should not be frowned upon. For a child to pretend that he is a confidante of spritely elves or has seen the moon peep, like himself, into a bedroom, or in imaginative play he has come from kings and the knights of old, is after all a wholesome, protective reaction in the face of great odds against overbearing and persistent adults who dread to see oncoming youth and exuberant spirit. In later life a vivid imagination, rightly seen, helps many a grown-up to meet the anguish and vicissitudes of ordinary life with renewed vigor and courage. Imagination is not the precursor of lies or tale-bearing, as many suppose, but is the foundation upon which all art and invention is based. It is not harmful in childhood ever if tolerantly accepted by adults. Too few adults have been reared in the past to rely upon the imagination to tide them over genuine misery. In fact, it is well for some that they learned to guard themselves by the amusement the imagination affords and seek an asylum in unreal zones and be spared the unendurable pains of life. A four-year-old girl last week in a Minneapolis nursery distressed her conscientious nurse. She had drawn a superior picture of a man with one leg shorter and bowed from the other. Thus distorted she presented it for approval and was reprimanded. The nurse thought she detected in the picture a tendency of interest in the morbid. Not so the child, for she refused to make the easy correction and said, "But he is a funny man." Yes, the imagination of the pre-school child should be protected and not warped by the idiosyncrasies of supervising adults, for therein lies the danger.

And lastly, the mental health of the preschool child is made safe, not jeopardized, by play with other children. He begins to show an interest in others, their equipment, their actions. If privileged, the preschool child should be interested in pets, but should not be expected to be interested particularly in their welfare or keep. Self-assertion interferes with the interest toward the welfare of anyone save self. But the individual child's reaction toward participation in group play

is, even at this age, definitely influenced by or related to the experiences he has suffered or enjoyed at the hands of older or younger brothers or sisters, and the attitude of parents to other children and adults. To be assisted to play well with other children is, indeed, a task of great responsibility for the parent, nurse or teacher.

Finally, from the foregoing it is hoped that it is evident that the mental health of the preschool child may be jeopardized by continued coercion, nagging correction and severe punishment, any one of which causes the annihilation of curiosity and frankness. They tend to create, if not actually train, a child into traits of shyness, deceit or evasiveness. These traits not only will interfere with early school adjustment and progress, but also foster maladaptation in adult life.

In conclusion, mental health then for the preschool child rests with those factors which facilitate adult supervision, which do not retard either physical or mental development nor hinder adaptation to a satisfactory environment in which both adults and other children are present.

MOUTH HEALTH AND THE PRESCHOOL CHILD

THOMAS B. HARTZELL, M.D., D.D.S.

*Professor, Mouth Infections, College of Medicine and Surgery, Professor,
Oral Surgery, College of Dentistry, University of Minnesota*

THE appearance of the baby's first tooth, in most families, is usually heralded by a great deal of fuss and commotion. Every ill to which the baby is subjected, from hiccoughs to malnutrition, is attributed to the fact that the baby is just cutting his teeth.

From generation to generation teething has received the blame which has been due to the omission and commission of parents and nurses for all the errors in nutrition and hygiene and training, of which the helpless baby has been the innocent victim.

Inasmuch as the teeth have been considered such offenders against the health of the infant, one would naturally suppose that an anxious watch would be kept over them, and that they would continue to be regarded as likely to be concerned in any physical disturbance to which the child might later be subject.

Actually, the opposite is the case. No sooner are the baby teeth cut, than everyone forgets all about them, and from the end of the first year until the shedding of the deciduous teeth, the teeth of the average child receive no attention whatsoever.

The idea that because the first teeth are temporary they are in need of no attention and should be left to nature because they will soon fall out anyway is still very general, and in the child of preschool age, even among the best classes of people, the teeth are woefully neglected and the results show themselves, not only in the preschool period, but when the child goes to school

Statistics are usually dry but it is interesting to note the uniformity of the results secured in dental surveys over the United States. The Bureau of Child Hygiene in The New York City Department of Health shows the following data :

Number of School Children examined.....	300,000
Number found with defective teeth, only....	95,000
Number found with defective teeth, and others having obtained treatment for teeth.....	165,000

In this particular report we note that one-third of the children who were examined were found with defective teeth. This looks like a conservative estimate, as other authorities have found the percentage to be much higher.

In Eau Claire, Michigan, the examination of a group of children shows the following facts :

21 per cent have teeth that are in good condition.
79 per cent have defective teeth.
91 per cent have permanent teeth with cavities in them.
14 per cent have teeth with fillings
35 per cent have teeth needing extraction, mostly with active abscess.

At White Plains, New York, 330 children were examined, of which only six had perfect teeth. Of the remaining 324, the examining dentist found :

1,102 cavities in permanent teeth of 205 pupils.
111 abscessed teeth in 73 pupils.
282 teeth needed extractions in 144 pupils.
Briefly, 98 per cent of the pupils needed dental work.

Clinical examination of the school children in Chicago shows that the average child has slightly more than eight cavities due to dental decay, and during the course of the next year many children will succumb to various systemic diseases which could probably be prevented if, in some miraculous way, perfect mouth health could be brought to each child.

In Louisville a recent survey of school children shows that 83 per cent need dental care.

Dr. William R. Davis, director of Dental Hygiene, Michigan Department of Health, recently discussing the results of a survey made in Michigan schools, stated shocking conditions were found. He said that with this startling state of affairs:

- 86 per cent of all children examined needed fillings or extractions, or both;
- 56 per cent had cavities in permanent teeth;
- 55 per cent had definite mouth infection which existed as a menace to general health.

In a great many cases these children needed attention not for one tooth but for six, eight or ten teeth; and they were largely children around seven years old. In the majority of cases they were pale and underweight.

The dental nurse in Shamokin, Pennsylvania, reported that 1,244 out of 3,230 children in the district had never used a toothbrush. Of that number 1,045 did not even own a toothbrush. The report further says that only 228 children used a brush regularly and only 155 children out of 3,230 could be said to have clean teeth.

While the toothbrush alone is not the solution of the problem of mouth health, yet the lack of its use indicates the general lack of knowledge regarding the importance of mouth health. But it is not only poor children who suffer. The "poor, little rich children" also have their trouble. The diet in the more well-to-do homes often seems to be not so productive of good teeth as in the orphanages and similar institutional homes.

In a survey of the mouths of various groups of children, Doctor Bunting of the University of Michigan found the poorest dental condition in children who came from well-to-do families and the best

dental conditions in certain orphanages where the children for years had been fed on a simple, well-balanced diet. This is a rather sad commentary on life conditions of children in the average American family.

In the public schools, Doctor Bunting found that every child had dental caries, while in one orphanage 65 per cent of the children were entirely free from the disease. The diet of the latter group was notable for its abundance of milk and vegetables and a minimum of sugar or candy.

We know that a child who is fed on milk, cod-liver oil and orange juice during infancy is usually protected against rickets and other diseases.

It is not enough to teach school children only. By the time the child arrives at school age, many of its habits are already formed, and the process of re-education has to take place. The child of preschool age must be trained before reaching the school age, and this can most readily be done through the mothers. Mothers constitute a class by themselves. It is impossible to exaggerate the importance of having them well-trained in the care of their own mouths and those of their children.

Judge Ben Lindsey, the great juvenile authority, insists on every child who appears in his court being properly treated so he will be free from mouth infection, and be able to masticate his food properly.

Dental caries is probably the most prevalent disease known to mankind. Statistics from the medical inspection of school children in Pennsylvania show that 70 per cent suffer from this defect. This is more than all other physical defects combined, and further, this examination was made by a physician, who did not have the time or the facilities to make a thorough preventive dental examination. In examining a group of these same children, dentists have found that between 90 and 98 per cent have dental defects.

Looking at the problem in its broad health aspect, we may take the statistics secured by a number of welfare organizations in New York. Based on an examination of 1,063 children of preschool age for physical defects, the results were as follows:

Defective Teeth	72.6
Hypertrophied Tonsils	26.3
Defective Nasal Breathing.....	23.1
Malnutrition	19.2
Pulmonary Diseases	1.12
Orthopedic Diseases ..	1.12
Organic Cardiac .....	.94

The physician making this report says, "The outstanding features are that the predominating defects found were hypertrophied tonsils, defective nasal breathing and malnutrition." These three added together make only 68.8 per cent while dental defects alone were 72.6 per cent.

No mention was made by the examining physician of the dental defects, and the society publishing this report was questioned by Dr. Thaddeus P Hyatt, assistant medical director, Metropolitan Life Insurance Company, who asked if they could explain why the doctor made no mention of the dental defects. This is their reply: "I do not think Doctor X means in his report to slight the importance of decayed teeth, but I judge he feels that defective teeth are so common in so many children that they are not given special attention."

We know tonsils, nasal breathing and nutrition are affected by a dental condition, and yet, because dental defects are so common, they are not given special attention. In other words, the problem is so great it discourages efforts to attack it.

Dr Luther H. Gulick of New York is responsible for the statement that of 40,000 children examined, those with two or more bad teeth averaged five months behind the grade they should be in.

Bridgeport, Connecticut, has carried on school dental hygiene work for ten years. Recently a dental survey was made of 24,000 school children from the kindergarten to the eighth grade in its public and parochial schools. In comparing the results with those of the examination of 1,000 children in another community of the same state, where no school dental hygiene work had been done, it was found that 8 per cent of the Bridgeport children had no fillings or cavities, and only 2 per cent of the children of the other community had no fillings or cavities. This is a splendid illustration of what school work can actually accomplish.

A taxpayer brought suit recently, in a supposedly enlightened community, to stop the school board paying for dental inspection and care in the public schools. The high light of the suit was the testimony of a school principal.

She found an improvement of 99.8 per cent in the mental ability of school children who were taught to take proper care of the teeth. The percentage was arrived at by painstaking observation and a checking up of their work, before and after the dental instruction.

Call it 100 per cent improvement, or call it half that much, if you like. If it will affect only 25 per cent improvement, or only 10 per cent, in the mental keenness and studious accomplishment of the pupils, such work is well worth paying for. Still more valuable, possibly, is the better morale that is likely to go with a clean, well-kept denture.

Out of 3,000 students examined at the University of California only ten have teeth that might be classified as perfect, according to some research work done at the College of Dentistry.

If a young child has deciduous teeth that are decayed, particularly if there are abscesses or gum boils, they should be removed. If they are not badly decayed, or if they can be filled and put in fair condition, they should be kept in the mouth. Every effort should be made to keep baby teeth from decaying.

The baby teeth need to be kept in the mouth until they drop out normally to maintain space for the permanent teeth. Shifting of the teeth and unfavorable movements of the jaw take place when teeth become useless on account of decay, or when extracted prematurely.

The roots of the baby teeth guide the eruption and positions of the permanent teeth. The crowns of the bicuspid of the erupting permanent teeth, lying as they do between the roots of the baby molars, are maintained in a definite position and direction until such time as the baby teeth are shed.

If the deciduous teeth are removed early, before there is sufficient length to the root of the permanent teeth which are being formed, the permanent teeth are very apt to come out in a rotated position. This, fortunately, is not true of all cases of early extraction of deciduous teeth, but reports show that there is a large percentage of rotated permanent teeth due to early extraction of deciduous teeth.

Retaining the baby teeth in the mouth until they normally drop out is a big factor in assisting normal eruption of the permanent teeth, yet they must be healthy if they are going to do their part in the development of the mouth. Abscessed deciduous teeth and infected roots do not assure proper development of the arch, and these are a positive menace to the health of the child.

Just as we do not advise adults to retain a badly abscessed first molar, merely because the loss of this tooth will cause the neighboring teeth to tip and upset the balance of the other teeth, so the health of the individual must be considered of greater importance than any deformity which might result because of the loss of the tooth.

Our knowledge of focal infection of adults today should be applied equally to focal infection of the child, since general health is the most important of all. A child has not built up an immunity to infection because of his lack of years, and is less able to combat infection than the adult. Cases of ill health in the child have been traced to infected deciduous teeth.

One mother brought in a four-year-old child, who was cross, mean, and difficult to manage. The child always seemed to be in an unhappy state of mind. She seldom smiled or played, and was continually sulky and irritable. The child's mouth, upon investigation, revealed six abscessed deciduous molars, none of which seemed to directly trouble the child. These teeth were removed, and several weeks after this, the mother came in to see the dentist again. The child was smiling, singing and happy. The mother said that the child was entirely changed, since the teeth were extracted, that she played and romped with the other children, and that her reactions were normal in every respect.

Such removal of infected teeth often eliminates the feeding problems of children, and this in turn helps to build up the general health and resistance of the child. Some children may have sufficient resistance to carry infected teeth without showing any signs of ill health. No one knows, however, how long the resistance of the system will continue. If a cold, or some other contagious disease occurs, then the recovery from this disease is prolonged because of the lack of resistance to fight both the new disease and the focal infection which has been present for a long time.

Dr. Harold DeWitt Cross, former director of the Forsyth Infirmary of Boston, has made the statement that good teeth for life are determined before the child is five years of age. If this is true, then the diet of this period is all-important from the standpoint of teeth. The secret of prevention of dental ailments in the mouth from the standpoint of the child, at least, is therefore not in the dental office but in the home.

It is well to bear the following points in mind in considering the importance of mouth health to the preschool child. Decay in temporary teeth is as unnatural as it is in permanent teeth. Temporary teeth are lost through the absorption of their roots, and are pushed out by the permanent teeth which take their place. All temporary teeth are not lost at the same time. These teeth are given to the child for the purpose of mastication. Being in the formative period of life the child must not only restore lost energy, but must provide for growth of bone and tissue. Hence thorough mastication is a vital necessity. Decayed and broken down temporary teeth impair mastication and tend to develop the habit of bolting food.

Temporary teeth guide the permanent teeth to their proper position so that early loss of these teeth due to decay or prolonged retention pave the way for irregular and unsightly permanent teeth. The child suffers more through impaired temporary teeth than adults suffer from impairment of the permanent teeth. Most parents are willing to save their children from needless pain. If decay is allowed to progress in these teeth until the nerve or pulp is involved, decomposition of nerve and pulp content takes place, and abscess formation sets in. Poisons which might seriously affect the child's general health permeate the system. Decay occurring in the approximal walls of the temporary teeth affords lodging place for food, and gives rise to decay in the adjoining permanent tooth.

Early impressions are lasting ones and childhood is the habit forming period. Temporary teeth in the majority of cases are easily cared for, if taken in time. Small cavities can be repaired with little or no pain to the child. Early attention to these teeth creates a favorable and lasting impression, and future difficulty in having the child revisit his dentist is in a large measure solved.

The greatest health benefit that could be conferred on coming generations of children will come by teaching young children to begin to masticate as soon as teeth erupt. This would mean an incalculable benefit in that it would make (as I have proven by research) 80 per cent carbohydrate food available for energy before it leaves the mouth, and save the expenditure of energy by the stomach spent upon carbohydrate food which it cannot digest.

Nature intended this work to be done in the mouth; a thoughtful study of nature's plan proves this to be true. The habit of mastication is easily taught, so let us encourage mothers to teach it by insisting on its importance.

Chewing cleanses teeth and reduces decay. Remember, mouth digestion is more important to the young child than the adult, because his first food after milk is starch, which can be digested in the mouth, while the stomach has no power to digest it.

All the starchy foods not digested by saliva place needless labor on the stomach which must struggle with such substances while digesting proteins, until pancreatic digestion can begin in the intestine. Hence the great importance of teaching the young child to use his teeth. Protect the teeth of the preschool child because his greatest brain development is in the first five years of his life.

In order to detect functional maldevelopment in its earliest states, or to institute treatment to restore malfunction to normal, mothers should be cautioned to look for, and to protect by early examination, the first molar which is frequently mistaken for a deciduous tooth. This tooth often erupts before the child is six years old. Nature intended it to take the burden of mastication during that period of life in which the deciduous teeth are being replaced, which occurs between the 6th and 14th years. Often it erupts with an imperfect enamel coat. Therefore, see to it that it is made perfect by proper fillings. Insist that young children see the dentist as soon as teeth begin to erupt.

All malocclusions and irregularities should be seen by the orthodontist, as soon as possible. Much time and effort is thus saved in correcting these, and where the arches are narrow so that nasal breathing is impeded, oxygen starvation should be prevented by broadening the

upper arch, which opens the nose; thus stopping mouth-breathing by making nose-breathing easy and normal.

The cleansing of the preschool child's teeth should begin as soon as teeth appear. This should consist in wiping their surfaces with cotton or linen squares, wrapped around the nurse's index finger, sweeping off the inevitable coat of ever-growing bacteria, whose acid decalcifies enamel and whose ferment irritates and dissolves the epithelium. In addition to this, at least in the morning and evening, apply a liquid or paste detoxifying agent to neutralize their products, and to render bacterial poisons harmless. Such a regime for the child whose diet follows the teaching of the pediatrics of today means normal health.

THE EXTENT TO WHICH HEALTH DEPARTMENTS ARE JUSTIFIED IN MAINTAINING FREE MENTAL, DENTAL, POSTURAL, AND NUTRITIONAL CLINICS FOR THE PRESCHOOL CHILD

SHIRLEY W. WYNNE, M.D., DR. P.H.
Commissioner of Health, New York City

THE duty of protecting the public health is the particular business of governmental or official health agencies. The character of the health protection rendered a community, while it rests to a certain degree with the citizens of that community, rests to a larger extent with the officials who are charged with such duties. It is the duty of official agencies not only to exercise police authority for the protection of the public welfare in general but, where they are not otherwise provided, to establish and conduct medical and educational services which the poor require.

In that sense, it is the duty of health departments to maintain clinics for important health needs, for the individual economically unable to go to the private doctor. And in that same sense, health departments are justified in maintaining free mental, dental, postural, and nutritional clinics for the pre-school child if the community fails to give such service through any other channel. For among children of pre-school age, defects of teeth, tonsils, breathing, and malnutrition

are more prevalent than among school children, to say nothing of the recognized importance today of mental hygiene among this early age group.

Let me recall, at this point, what steps were taken in the campaign against tuberculosis and against the venereal diseases. In New York City, the pioneer in the tuberculosis movement, there were, back in the nineties, practically no clinics available for the diagnosis, treatment, and supervision of cases of tuberculosis. Under these circumstances, the Health Department not only felt justified but felt its responsibility to establish special tuberculosis clinics. In the thirty-five years which have passed, the attitude of public hospitals and clinics toward tuberculosis has materially changed and there are now sufficient facilities in these hospitals and clinics to take care of the tuberculous. Such patients can now secure the examination, treatment, and supervision which the special Health Department clinics aimed to give. Because this work has been effectively taken over by these other health agencies, the Health Department is now withdrawing from the tuberculosis clinic field, and in place of the tuberculosis treatment clinics there are being established a few special diagnostic stations to which private physicians can send patients for diagnosis. This same development will probably repeat itself in the case of the venereal disease clinics.

When it comes to clinics offering medical examinations, nutritional, dental and mental hygiene services to the child of pre-school and school age, you find conditions similar to those existing in tuberculosis thirty-five years ago. The general hospitals and their out-patient departments have not yet become educated to caring for apparently well children with a view to keeping them well. They do not yet realize the important service they can render in the matter of periodic health examinations. They are still concerned largely with attempting to cure sick individuals. Experience shows that it is far more important to keep persons well than to attempt to cure them after they have become ill. Until such time as we can get the hospitals to adopt this modern viewpoint, it will be necessary for the Health Department to establish clinics and health stations of the type mentioned.

It has been estimated that fifty per cent, and this is probably a low estimate at that, of the people in the City of New York can afford to

purchase their own preventive health service. The doctor should supply the preventive service to those who can pay, the health department or some other official or semi-public agency to those who cannot afford to pay.

America is doing more for the expectant mother and the new-born infant than is any continental country. But it is time we concentrated as much energy and health activity on the preschool child as we now do on the infant and the school child.

To my mind, the brightest page in medical and social history is the record of improvement in infant welfare, to which the greatly reduced mortality and improved physique of present day babies bear eloquent witness. From Sir Arthur Newsholme, former principal medical officer of England's Local Government Board, comes this pertinent quotation: "Knowledge has spread to an extent which puts the poorest mother of today in a better position to secure her infant's health than were the well-to-do a generation ago."

Nor has the school child been ignored in the public health program of an enlightened and progressive community. The same, however, cannot be said for the preschool child. Its health needs have been ministered in a more or less desultory fashion. There are many private organizations throughout the country interesting themselves in the preschool child. But many of these private agencies are not as well equipped as the health departments to direct this vital work most effectively.

The very fact that in New York City alone approximately 38 per cent of these youngsters entering school for the first time each semester show some form of physical defect is the best proof possible that we have failed to follow up our health activity with the same thoroughness and effectiveness that we expended on them as babies. Of the total number of children who were examined last February upon their entrance to school, 25 per cent had defective teeth, 16 per cent had enlarged or diseased tonsils, 14 per cent were undernourished, 13 per cent suffered from defective nasal breathing, 10 per cent had defective vision, over 1 per cent had some form of heart disease, while another 1 per cent had defective hearing, orthopedic or nervous defects. We have found that many school children who are not promoted are not

necessarily dull pupils. Usually such boys and girls are suffering from some physical defect that should have been, and could have been, corrected in their preschool days. When these defects are cleared up, experience shows that these children rank equally with others in scholarship.

It is interesting to note that as far back as 1914, England awoke to the realization that the preschool child was not receiving its measure of health attention. In a letter to county councils and sanitary authorities written on July 30, 1914, the Local Government Board pointed out that "Up to the present, local authorities in their infant welfare work have concerned themselves more especially with the child in its first year of life; the matter is, however, one which needs to be dealt with on a more comprehensive basis and it is clearly desirable that there should be continuity in dealing with the whole period from before birth until the time when the child is entered upon a school register. . . . Extension of the existing work is accordingly needed in two directions; on the one hand it is necessary that measures should be taken for securing improved antenatal and natal conditions, and on the other, provision should be made for continuing the work in relation to children beyond the first year of life."

What the future health of the child is to be depends on the care it has in the beginning, but it also most certainly depends on an effective follow-up of that beginning. Assuredly, a little child is entitled to as much care as a slip of a plant requires in order to take root and live. Yet many children, once they have passed the baby stage, have been given far less care. Many of them, like Topsy, have "just growned."

The health department is the logical agency to take the situation in hand and lead the way in the matter of providing mental, dental, postural, and nutritional services for the preschool children. If the fees of the private physicians and dentists specializing in these phases of medicine are not within the reasonable possibilities of the average income, and if the hospitals and other health agencies in the community do not offer help in this direction, the health department must. I believe the health department is justified in maintaining such free clinics to the extent that the health of these children is bettered and safeguarded. I believe that the health department is justified in leading the way and in carrying on such services until such time as the private

physicians and other health agencies indicate they are ready and willing to take over this work. But I further believe that even when that work is taken over, the health department should still retain a certain amount of jurisdiction.

The time is not far off when every large city shall have district health centers in strategic points, just as we have today our district police and fire headquarters. The people of a community would soon protest vehemently if their particular district was not supplied with adequate police and fire protection. There is just as much need in a district for health protection. It is to the district health center of the future that we look for that protection. The health center will serve those who are too poor to pay the private doctor; it will have a special division catering to the needs of the preschool child, and it will also provide the physicians of the neighborhood with a central service where X-ray facilities and every means of biological analyses will be at their disposal. The doctor is the most important factor in the whole public health movement, and I cannot be too emphatic in my statement that the development of these neighborhood health centers should, and would, in no wise interfere with the relationship of the patient to his private physician.

Whenever we mention the maintenance of free clinics, whether for baby, preschool child, school child, or adult we tread on delicate ground. We touch that economic sore spot of the medical profession. The last two decades have witnessed an astonishing amount of curative work done by health departments. And the relationship of the private practitioner to the public health program has subsequently become an angle of great contention. Many doctors have displayed hostility from time to time to certain health department activities, on the economic ground that the inauguration of such activities was trespassing on the private domain of the medical profession.

In New York City, and I believe it is true of most communities in our country, such activities have rarely been established where the private physician could and would supply the necessary service.

Our experience in New York indicates that if, side by side with the establishment of such activities, an honest effort is made to have as much of this work done by private physicians as possible, in a relatively short time the medical profession will realize that, far from making

inroads on the practice of the private physician, this type of activity results in a considerable increase in their private practice. After all, most people who can afford to pay a modest office fee will prefer to have their children examined and treated by their family physician rather than seek such examination and treatment at a public clinic. It is necessary, however, for the medical profession to be educated to the type of service demanded. And this educational movement is a direct responsibility of the health leaders of the community.

In this connection, let me emphasize the importance of standardizing fees for certain specific services such as the medical examinations of the child of preschool and school age, the periodic medical examination of adults, removal of tonsils and adenoids, toxin-antitoxin treatments against diphtheria, and so forth. This can usually be brought about through the cooperation of the Health Department and the county medical society. We have just had an interesting example of such an experiment in New York City in connection with the fixing of a flat fee of \$6.00 for the three toxin-antitoxin treatments.

To get back to the specific case of the preschool child whose health wants have been neglected, it is the health department that must get busy along this line. We have concentrated too little attention on those from two to five years of age, particularly in regard to the mental, dental, postural, and nutritional aspects of that period of life.

I would like to see mental hygiene an important function of the health department. The number of mental defectives and the number of neuropathic and psychopathic persons in our communities have increased. If we had the facilities to do preventive work with the preschool child; if we maintained free clinics for mental hygiene where children inclining toward peculiar behaviorism could be studied, we would be given the wonderful opportunity to adjust them to their environment and eventually to start them out toward adulthood, unhandicapped by mental illness.

The promotion of mental health belongs with the health department and should be undertaken and maintained by that department. However, in large cities where there are special institutions for the care of mental cases, it would be advisable for the health department to coöperate with such an agency in the establishment of the clinic facilities demanded.

More intensive nutritional work needs to be done. Only by the adoption of an individualistic method, however, can full benefit accrue from any nutritional service, and that is the type of service the health department should establish. This is equally true of a postural clinic for the preschool child. The popular "slouch" of today gives every indication that there is a crying need for such a service at that early age when a good posture can most effectively be taught.

And now we come to the last of the clinics in question, the dental clinic. While New York City can boast of 152 dental clinics, maintained by the Department of Health, hospitals, and private agencies, and while only 12 of these clinics exclude children entirely, there are a mere handful that treat the preschool child. I am told that two New York day nurseries give dental service to the children twice a year. Here again we find too little attention given to the preschool period, especially when we realize that the two-year-old child is not too young for his first visit to the dentist.

Thus far, the New York City Department of Health has only one special preschool clinic. Even this, however, was established through the aid of the Milbank Fund. It is operating in the Bellevue-Yorkville Demonstration Area and reached 414 children during the year. In cooperation with a number of private agencies, some additional work for preschool children was done. The subject of the examination of more preschool children has been much discussed during the year, and parent-teacher associations and others have been invited to cooperate in teaching parents to have their children of preschool age examined and defects, if any are found, corrected.

It is my hope, however, that our one special preschool clinic shall multiply into just as many as are needed to give proper supervision to the little ones who have graduated from babyhood and yet who are not quite ready for the first step into that more grown-up world of school.

Child care must fail unless the individual mother and the individual child are dealt with as individuals. You can cast bullets in a mould, but children cannot be handled that way. No book can teach the lessons of how to make a child thrive. It is to the private physician the mother must turn for help and advice. But where a mother cannot afford to go to a private physician, there the Health Department is justified in stepping in and offering her help and advice.

HEALTH TEACHING IN THE ELEMENTARY GRADES

IDA M. HASKINS

Director of Health Education, Mansfield Public Schools

IN the few moments allowed for this discussion we shall concern ourselves with a consideration of the most outstanding objectives in health education, a brief discussion of methods and materials for the achievement of these aims and a few suggestions regarding measurement of results.

In the field of health education we are still handicapped by our vagueness of concept as to what health is. To quote Dr. Hamill:¹ "When one comes to formulate a statement which will serve as a basis for the diagnosis of health and convey to the lay individual the standards by which he can determine whether or not the development of his child is entirely satisfactory, one faces a very difficult task."

In this book on "Signs of Health in Childhood," Dr. Chaplin states that we need to keep a picture of what he terms the "optimal" child clearly before us. Suggestions are given to parents and to children as to how this ideal may be attained. The authors have formulated standards by which the health of children may be measured. And so health education has taken as one of its chief aims the removal of all conditions which might be holding the child back from his highest possible health achievement. In the light of standards herein set forth it must, therefore, place among its chief objectives the prevention and correction of defects, disease prevention and control, the motivation of the child in those practices which health authorities consider essential for normal development and well-being. And as the child is advanced from grade to grade there must be placed upon him an increasing responsibility for the regulation of his own practices and the control of his environment for healthful living in order that he may live a happy and useful life. Therefore, in addition to the correction of all remediable defects and the motivation of the essential health practices, a further aim of the utmost importance in health teaching in the elementary grades is the preparation of the pupil in the knowledge of the principles of disease prevention and control,

covering the field of home, school and community sanitation, preparation and care of foods, production and care of milk and a study of water supplies, all of these in order that the child shall early become an intelligent citizen of his community; so that he shall become increasingly able and eager to meet the responsibility for the establishment and maintenance of wholesome living conditions in the home and in the community; so that he shall be active in safety first and accident prevention and have a dynamic interest in specific measures for the control of preventable disease.

Many persons are involved in the health education program of the schools, some of whom are quite unconscious of the important rôle they are playing. First to be mentioned is the classroom teacher. All agree that she is playing the major rôle. The superintendent's interest in health education is indispensable. To quote a statement by a school superintendent² who has been eminently successful in securing a permanent place in the school curriculum for health education, "The superintendent alone can guarantee the conditions necessary for health education." Miss Sally Lucas Jean, who has kept in touch with the development of health education in the schools of our country as well as those of other countries, makes the statement that no superintendent who does not have an interest in health education or who is incapable of incorporating it in his system should have a place in the schools of our country.

The doctor, the dentist and the nurse are indispensable in the health education program. Schools are everywhere suffering from a too limited service from these specialists. Detection and correction of defects is the very backbone of the health education program. The janitor in whose hands rest more perhaps than in those of any other the health and comfort of teacher and pupils is a most important factor in health education. The physical education persons, the lunch room director and science teachers, all who touch the child and his environment at any point are factors in this health education process. School systems which are building health as the foundation of the superstructure are making every teacher and every employee participants in the health education program.

Perhaps the most difficult phase of health teaching in the grades is

the motivation of the child in those practices which health authorities consider essential for normal growth and well-being. How is the teacher to motivate her pupils in the daily practice of these so-called "health chores" which are often irksome even to adults.

The best results are not always achieved by placing in the hands of the teacher a careful organization of subject matter in the form of a course of study, to be worked out during a certain period each day designated on her daily program as a health period. Especially is this true if health teaching is a new subject to her. The course of study will aid her greatly after she has first made a study of the needs of her group and after she has herself first made an effort to find a solution for her problems. And then it is valuable to her in proportion to her participation in its preparation.

Upon entering the typical schoolroom we shall find anywhere from thirty to fifty children, many of them apparently in a good state of physical and mental efficiency, those on the top rung, and from this point on down in varying degrees one will see children who are listless and inattentive, children with poor posture, those who are malnourished; those showing poor emotional control and social adjustment. In the field of minor defects there are many with infected tonsils, decayed teeth, enlarged thyroid and even defects of a more serious nature. These children may be found in seats that fit none too well; in a room in which temperature and ventilation are controlled only with difficulty; playgrounds there are, but inadequate as to space; the lunch rooms may be dark and unsanitary. This is a picture with the details of which health education must concern itself. And it is in the midst of conditions similar to these that health education finds its objectives. Let the teacher first find the needs of her group. This is the point at which health education must start. Having found her problems, suggestions as to facts to be taught and methods and materials which have already proven their worth will aid her as she endeavors to individualize her own health teaching.

Let us approach this question in the light of certain principles inherent in the nature and scope of the health education process of the pupil. What is health? What is health education? One⁸ has defined health as "the quality of life that renders the individual fit to live

most and serve best." Dr. Thomas Wood and Miss Lerrigo⁴ have given as the definition of health education that it is "the sum of experiences in school and out which favorably influence the habits, attitudes and knowledge as related to individual, community and racial health" It is the sum of experiences, not merely knowledge. In the light of this definition the success of health education must be measured in terms of conduct or behavior as the authors herein state. The aim of health education as in all education is to produce changes in the individual, in the acting, feeling, thinking individual which shall result in physical, mental and social well-being. Of what do these changes consist? This suggests two big problems. First, *what* changes are to be made, and second, *how* they are to be made. And this is the whole of the curriculum in health education. The changes to be made depend upon the needs of the group. And these needs are the teacher's objectives in her course of study. Among these she will find the malnourished child, the child with enlarged tonsils or decayed teeth; the one who comes to school without breakfast; the one who does not have sufficient sleep; the boy who slouches when he sits and walks; the child who does not get along well with others. To know what problems exist is the first step. But merely to recognize these is not going far enough. What can be done about them? These represent the teacher's objectives, very human, interesting ones, and they indicate the changes which should be made. The class room teacher proves herself to be the most important factor in the solution of these problems. How to get a favorable attitude on the child's part for the longer hours of sleep needed; how to interest the child in the foods suitable to his needs, or in outdoor play; or how to help the child to get along better with his fellows. And so the business of helping children to acquire favorable attitudes and practices with reference to specific items as food, rest, sleep, exercise, play, good emotional and social adjustments, correction of defects, disease prevention and control, conservation of vision seems to be the big task of health teaching in the elementary grades.

Real health education is doomed if it must be limited to a few moments each day which may be called the health period. The health education of the child begins at that early age. By the time he comes

to school he has a set of habits. Some of these are favorable and some are not. The teacher aims to encourage those that are and to substitute for those that are not helpful. This is done largely by environmental conditions and situations which are set up in the school and on the playground. You cannot departmentalize the health education of the child. Health education is fundamentally a policy rather than a program. To try to confine it to a few moments each day in the school room is like attempting to crowd a lion into a bird cage. And still that is what some schools are attempting to do. If a teacher regards health education as a program merely she may feel that her obligation to it is discharged at the end of this so-called health period. One teacher may say "Miss Blank teaches my health" and her attitude indicates that she does not realize that the most vital part of the health teaching may be of the incidental type which falls outside of this direct teaching period. The value of the period for direct health teaching lies in the fact that it provides a specific time when the child receives instruction about the essentials of right living. At this time he learns what to do, when and how to carry out these practices which are essential to his growth and well-being. And in the upper elementary grades he learns why these are essential, thus introducing him to the subject matter of physiology and simple anatomy and to the study of the problems of community health. His interest is still further stimulated as he finds health problems likewise in his geography, history, civics, reading and English.

Pupils are much more interested in the production and care of milk after they have learned that in some countries it is still drawn in dog carts and is even delivered fresh and warm by driving the cow or goat from door to door until the supply is exhausted. He is much more concerned about the value of the semi-weekly bath after he has learned of the interesting cleanliness customs of other nations. The knowledge that boys and girls in cold countries consume great amounts of fats and in warm climates use a diet made up of generous supplies of fruits, stimulates in him an interest in the classification of foods according to their uses and values. The unusual customs regarding sleep, play and exercise, of boys and girls in other lands, open an avenue of interest far more stimulating than the mere discussion of the value of sleep

or fresh air. And so in the upper elementary grades, we are covering in our health education field the study of milk, its value, production and care; the study of water supplies in rural and urban communities; food products, their relative values and their uses; their production and preservation; study of foods grown in other countries; the influence of climate upon food needs and growth, and upon types of clothing worn; studies of living conditions in the early history of our own country. Pupils like to preserve the results of these studies in the form of projects, note books, posters and sand table representations which they exhibit with great pride. Under these methods the child is acquiring knowledge because he wants to know. In a subtle way he is acquiring a background of interests which will encourage favorable attitudes and practices in personal, community and, later, racial health.

It would be as easy to make a man or woman an honest individual by devoting a few moments each day to thinking of and doing acts of honesty and kindness as to hope that the objectives of health education would be achieved for the child by employing a few moments of the day in living and thinking wholesomely and then forgetting it for the rest of the day.

If a man is going to be really honest he must practice honesty in all situations. If an individual is going to live wholesomely he must do so fairly consistently and continuously.

These considerations further suggest the nature and scope of the health education process. Health education must operate all day long, in the school room, on the play ground, on the street and in the home. Merely to say to the child at stated times "go to bed early," "wash your hands before eating," "drink four glasses of milk each day," is not going as far as health education must go. The successful, interested teacher is not trying to get by on that kind of teaching. We are not being honest with health education if we stop there. We must always consider the emotional and social attitudes in the mind of the child which are associated with our methods of teaching. Is the child interested, or bored? Does the child *like* long hours of sleep? Does he *like* food suited to his needs? When he makes a mistake, does he cry, or does he face squarely the consequences of his error? These attitudes of the child are a matter of great concern to health education.

As to valuation of methods in health education there are no measures that give a total picture of the improvement of the child.

It is more fact than assumption that elimination, rest and sleep, play in the fresh air and sunshine, good social and emotional adjustment are among the factors which favor growth and well-being. How is the teacher to secure an objective check upon the child's behavior in regard to these specific items, especially at those times when he is not under the supervision of the school? How is she to make an objective measure of the health practices of her pupils? Does this knowledge function? Children are carefully instructed at school regarding the factors which are essential to normal growth and development. They learn why these are important. Do they, then, regulate their practices in accordance with what they have learned. Does health knowledge function in daily life?

Health knowledge questionnaires are helpful. Of these the Gates-Strang⁵ was the first reliable and objective check on knowledge, and until quite recently the only one. Within the last year there has come from the School Health Research Department of the American Child Health Association a battery of five tests⁶ which are designed to test not only health knowledge but health habits and attitudes as well. The appearance of these tests has been anticipated with great eagerness providing as they do tools for the objective and reliable measurement of habits and attitudes.

Health education must be placed on the same basis as measurement in other subjects. The growth records of pupils and records of the correction of defects show in an entirely objective manner the improvement of children.

Measurement of growth and records of changes suggest many interesting studies. Galton recognized many years ago two important factors in growth, "nature" and "nurture." As the growth records of two children of the same age and the same racial stock are compared, why does the growth curve of one rise much more rapidly than that of the other? Is nature or nurture responsible? If nurture, what factors in his environment have been responsible for producing the change? With reference to posture, what factors influence the improvement of it? And of these factors, what single factor is most

important? A comparison of the results observed in groups where different emphases have been made for the achievement of the desired results might reveal to us what is the factor that is being most potent in producing these desirable changes. Greater accuracy in weighing and measuring of pupils and a difference of emphasis in health teaching with each of several groups might reveal some interesting and helpful data as to method of health teaching.

To sum up health teaching in the elementary grades seems to be the business of taking in hand the physical, mental, social and emotional living of each separate pupil, stimulating and encouraging him to make it better and to keep it better, a continuous, consistent effort in order that a happy and successful life may be the result. It is an organization of teaching material in terms of the child's well-being with a view to helping him to develop within himself the ability to regulate his own practices with reference to food, exercise, sleep, disease prevention and control so that he may continue to live a happy and useful life. And the teacher's big task is to become the helper of the child and, as stated at the beginning, this is to be accomplished first by a recognition of needs as objectives, the use of appropriate and effective materials and activities in an effort to solve the problems that exist, and, finally, an evaluation of the methods used.

To state it simply health teaching is first a study of children as they are and of their behavior, as a starting point; secondly, an effort to change them, and finally it consists of studies to determine what changes have been made and the factors which have produced the desired results.

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THE CLASSROOM TEACHER AND HEALTH EDUCATION

ANNE WHITNEY

Director, Health Education Division, American Child Health Association

ABOUT ten years ago a little pamphlet was published through the Bureau of Education in Washington entitled "Wanted—Teachers to Enlist for Child Health Service." This appeal was to the classroom teacher to enlist her interest and her effort in the campaign to better the health of school children. This pamphlet was to all intent a campaign call and was based on the psychology of the hour, to meet an immediate problem which the conditions of the time had apparently intensified.

The classroom teacher who enlisted to combat those post-war conditions, which seemed to be operating adversely to the promotion of healthy development of children, has found that her enlistment could not be for a brief period but for the duration of her life as a teacher, and others have come to join her. For Health, as an objective of education, is now not only recognized theoretically by educators, but also practically by administrators and that the teacher has an important part in a health education program is almost a platitude.

I do not want to take your time today in restating ideals which have been stated many times, far better than I can state them, and to which we all subscribe, nor in redescribing to you theoretically possible ways in which the teacher might utilize her strategic position educationally in attaining this objective of health. Instead I want to share with you some of the insight we have had on what numbers of teachers are actually doing and how they are doing it, as was disclosed by some data which we obtained in the course of our School Health Study.

CONTRIBUTION OF THE SCHOOL HEALTH STUDY

In our field work for the School Health Study, we held conferences with some 226 teachers who are in a position to influence the health education of some 7,500 children in 5th and 6th grades. These children were in 70 school units drawn from 70 different cities in the United

States of wide geographic distribution. The picture revealed in this sampling is therefore of the city teacher not the rural teacher.

Part of the purpose of our Study was to secure data, if possible, which would offer some clue as to the relationship between different types of health teaching and the educational outcomes in pupil results. Our pupil psychological tests have been published under the title *Health Education Tests* * and are known to many of you. If not, I refer you to the monograph for their description. Securing data from teachers was a more difficult matter as some teachers are very shy of tests. The atmosphere produced by paper tests with teachers-in-service reminds one of the old nonsense rhyme :

The beaver brought paper, portfolio, pens
And ink in unfailing supplies—
While strange creepy creatures came out of their dens
And watched them with wondering eyes.

We did not mind being beavers but we did wish to avoid presenting any attitude of criticism. Besides which we wished to secure all the methods which were being used as well as those with which we were already familiar. We sought, therefore, the cooperation of teachers, urging them through their common interest in health of children, to pool their methods, procedures and opinions. This was effected through an arranged personal conference with the Health Education member of the study staff.

Outstanding features of these teacher conferences were :

They generally lasted several hours and the teacher was relieved for the conference period of all class-room responsibility, a substitute often being supplied for that half-day. This enabled her to give full attention and to feel unhurried.

Definite procedures were followed in each conference in order that the data might have comparative value.

An attempt was made to reach through these conferences the present teacher, the teacher who had the group the semester previous and any special teacher designated by the principal as being responsible for health teaching with the particular group of children involved.

* Monograph No. 1 of the School Health Research Series. 90 p. American Child Health Association, 370 Seventh Avenue, New York City.

While certain features of the conference consisted of material to secure teacher opinion, such as true-false statements, matching activities and knowledges to situations, and relative rating of different activities, and so forth, there were, in addition, certain topics which permitted the teacher full scope for giving out any additional methods or unique ways of teaching, or unusual use of situations or subject matter. For instance, certain specific health objectives were given her and she was asked how she sought to attain these with her pupils, if at all. She could give as much or as little as she desired, all responses were welcomed and recorded by the interviewer.

In the same manner different topics in other subjects were given her and she was asked to state the health correlations, if any, she might develop with her class—should such a lesson occur.

It is from the verbal responses made by 226 teachers to these “given objectives” and “correlation topics” that I wish to draw a picture for you today of the 5th and 6th grade teacher as a health teacher. For here we find those things which the teacher herself is consciously using in her effort to teach health, and there is no suggestion from outside as to what she should or might be doing.

Please keep in mind that this picture that I am giving you is not an idealistic or even cubistic painting. It is more like a composite photograph, with all the good, bad and indifferent features “just as they are.” There will be no attempt in this paper to evaluate these features. It is entirely an analysis of the quantity and kind of teaching which teachers themselves volunteered.

For detailed analysis here today, I have chosen one of the most popular of the “objectives” namely, “maintenance of good nutrition in pupils and improvement of nutrition where necessary.”

It is first of all very interesting to note what is associated in the teachers’ minds with nutrition and the relative strength of these associations. Of 826 answers which were analyzed:

- 621 related to foods
- 124 related to weight of pupil
- 20 referred to rest or sleep
- 11 to exercise
- 5 to elimination

While one would expect teaching of foods and food values in relation to nutrition to be proportionately large, this indicates such a heavy overbalance that it may be well perhaps for us to pause and consider whether it is justified or whether more of the attention of the teacher might not with profit be directed to values of rest, sleep, fresh air, exercise and elimination as factors in influencing nutrition.

CHANNELS OF TEACHING

This then is the concept of the teacher in regard to important factors to be considered in maintaining or improving nutrition. Now what does she do about it? What are the channels through which she attempts to achieve her teaching? We have classified 900 statements into two groups, namely, Direct Teaching and Related Teaching.

Direct Teaching

In this classification, it was taken for granted that teaching was direct unless the teacher specifically stated that the instruction was being given through other subjects or that the teaching was in reference to a special situation. 369 replies indicated such direct teaching.

Of these 369 direct teachings, 293 were what is popularly known as class instruction, given to the group as a whole and probably in the health or hygiene period. Examples of answers of this type are.

- (a) Direct instruction on nutrition in hygiene classes
- (b) Take up diets with children in health class
- (c) Talks to children on value of milk, fruits, cereals and vegetables and their contents—why they are good to eat.

Two of these 293 indicated individual instruction in a class period, such as "teach choice of diets in relation to individual needs."

The other 76 implied definite instruction in relation to definite health situations which were obviously not connected with a hygiene period. Such items as:

- (a) Teacher encourages underweights to bring fruit for mid-morning lunch in addition to milk lunch
- (b) Underweights put in nutrition class
- (c) There is a candy store around the corner, so discusses with children the proper time for eating sweets and the proper amount

It is interesting to find that this direct teaching has only the faintest suggestion of being anything but straight presentation of facts, since only one reply suggests the use of a demonstration and two state use of "analogy." Since this is the case it is surprising to find only sixteen who actually indicate a reliance on the textbook. While this does not mean that others are not using texts, it does mean that these 16 relied sufficiently on the text to volunteer the fact. On the other hand, 58 mentions are made of the use of posters and 16 of the use of plays.

Only about 38 of these 369 direct teaching items evidence a negative type of teaching.

Related Teaching

Five hundred and thirty-one statements fell under the general heading of related teaching. Because there is so much vagueness in the minds of most of us about this term "related teaching" I think you will be interested in examples of the types of response which we placed here. We classified these 531 statements for related teaching

- A. The use of situations for related teaching.
- B. The use of subject matter.
- C. The use of pupil activities.

Under "A" the use of situations

- (1) Those situations involving pupil experiences or relating specifically to opportunities for pupil experiences. For instance:
 - (a) weigh and measure children every month
 - (b) milk lunches provided by school
 - (c) 30 minute rest period
 - (d) cafeterias try to serve wholesome food at lunch

There were 84 of such items

- (2) Secondly—Those situations where pupil experience is used as a check to discover pupil needs. Examples of this are:
 - (a) Use health inspection to find out what children eat in individual cases.
 - (b) Find out who was not eating breakfast.
 - (c) Check up on health habits of children as foods, bathing, etc.

There were 120 statements of this character

(3) Thirdly—Those situations where pupil experience is used to secure the cooperation of the home.

(a) "If mothers come to school, try to speak to mothers of underweights and tell them what foods the child should have in order to gain."

(b) Children weighed each month, reports sent to parents.

There were only 38 items which specifically suggest this home-school cooperation

In the second group under "Related Teaching," which is concerned with subject matter, 168 replies gave evidence of this type of related teaching but only 7 indicated teaching from first hand observation of facts such as visits to a dairy, bakery, and so forth. Remembering that this is a 5th and 6th grade group, and the community facilities which are available, this seems disappointingly small. Three refer to related teaching of subject matter in connection with "projects" which are understood to include other objectives than health. Examples of this type of response are:

(a) Read stories about foods

(b) In auditorium work, one of the most interesting parts of the work is the making out of menus

(c) Correlated with arithmetic, number of calories in food

(d) In art class, have pupils make placards for parties and plan menus, and so forth

The material from the "correlation topics" throws further light on the character of this type of related teaching. I have not the time today nor do I wish to go into a detailed analysis of this so-called correlated teaching, but I should like to say that the teacher responses as a whole, indicate a general haziness of mind as to what is meant by the term "correlation," and there appears to be a tendency for the teacher to attempt to give health "a free ride," by slipping it aboard on the flimsiest of pretexts.

I do not want this statement to be interpreted as an evaluation of this type of related teaching as generally poor. I do, however, feel that this rather outstanding tendency on the part of teachers is one to which we should be giving consideration, and that perhaps we need

to be clearer in our own minds regarding "health correlations" before we urge teachers to expand this angle of their teaching.

The last group under related teaching has to do with child activities used primarily for the purpose of motivation. One hundred and thirty-one replies fall in this group which includes such activities as:

- (a) children bring pictures and make nutrition posters
- (b) make health booklets including foods
- (c) make health play built around foods

It also includes 56 statements of the use of competition to secure child interest in this objective, such as: competition between groups, Blue Ribbon project, vegetable race, and so forth.

Briefly summarized then for the Objective "Maintenance of good nutrition or improvement of nutrition where necessary," 59 per cent of the items specified as "related teaching" and 41 per cent is classified as "direct teaching" or teaching which is stated but not specified "how" or "when." Roughly speaking, less than 4 per cent of the teaching is negative in character, and over 57 per cent of the teaching attempts to use child experience or child needs as a basis of instruction. How well these channels are used or the relative values of these channels, I am not attempting to state as that is as yet purely a matter of subjective conjecture. We shall hope that further study of the data may yield some light on this.

SUMMARY OF DATA ON OTHER HEALTH OBJECTIVES

A brief summary of teachers' statements relating to other objectives of health teaching shows a very similar picture to that given on nutrition. The largest proportion of direct teaching was on "Prevention of Colds" where almost 67 per cent of the statements came under this heading and most of these under group rather than individual instruction. The bulk of replies suggesting related teaching in connection with "Prevention of Colds" fell under situations involving pupil experiences or situations offering opportunity for pupil experience.

The lowest proportion of direct teaching was on "Prevention of Fatigue," 17 per cent as opposed to 81.3 per cent of related teaching plus 16 per cent answers that stated that no teaching was done. Again,

in regard to this objective, the overwhelming volume of the statements were in relation to situations involving pupil experience

In brief the teacher of 5th and 6th grade children, if these 226 are fair examples, seems to be tending to give more attention to health teaching which involves learning through doing and her horizon is no longer limited to teaching facts to classes of children.

RELATIVE EFFECTIVENESS OF CLASSROOM TEACHING

There is, in addition, a matter concerned with the relative effectiveness of classroom teaching on which we have some data that already shows trends which we feel we are safe in assuming to have significance. The pupil units were, as you know, in three geographical groups. If on the scores for all pupil units we make allowances for such factors as intelligence, age, grade, economic condition, cultural background and size of city, and then select the five units in each geographical area ranking highest in results for the educational tests, we find more teachers reaching these units who are among those ranking highest on the "objectives test." It is also true that there are *fewer teachers who rank low* on the "objectives test" associated with these *better pupil units*

The reverse of this is also true. The poorest pupil units have fewer of the high ranking teachers and more of the low ranking teachers in this "objectives" portion of the teacher conference material.

SUPERVISION AND HEALTH EDUCATION

Another interesting feature is the data on supervision of these 15 pupil units ranking highest in the educational tests (5 from each geographic group).

Of the 15 units highest in pupil tests all have some type of supervision provided specifically for the educational aspects of the health program:

- 9 units are under a supervisor or director of Health Education.
- 3 units are under a member of the administrative force who is specifically charged with such supervision (2 assistant superintendents and 1 general supervisor)
- 2 are under Directors of Physical Education
- 1 is under a medical director who supervises a group of special health teachers.

Of the 15 units lowest in pupil tests, one is under an assistant superintendent, 4 have no supervision, the other 10 are under the supervision of an individual who is a specialist by training in some one phase of the work, or the responsibility is divided among several such specialists. Of these, 2 are under Physical Education Directors. Two are under Physical Education Directors and Nurses.

1 is under Physical Education Director and Principal

1 under Physical Education Director and Nutritionist

1 under Supervisor of Nurses

1 under Supervisor of Nature Study

1 under Supervisor of Nutrition

There appears to be a relationship then between administrative policy providing supervision and pupil educational outcomes.

This is interesting as indicating tendencies. It is perhaps no more than one should expect; where there are qualified individuals giving the educational aspect of the program undivided supervisory attention, one should get better results. However, it is pleasing to have cold facts add their support to "expectation."

To those of us who have had faith in the potentiality of the average classroom teacher, as a teacher of health, there is a real satisfaction in having been given this opportunity "to challenge our own dream—to overtake the things that are—behind the things that seem"—and, an added satisfaction to discover realities in our dream and that total disillusionment, in this instance, "is not the price of curiosity." I feel confident that when all the study data relating to teachers has undergone careful analysis and all the relationships have been made, the rôle of the classroom teacher in a program of Health Education will emerge as a rôle of major importance.

TRAINING TEACHERS IN HEALTH EDUCATION

ELMA ROOD

*Professor of Nursing Education, George Peabody College for Teachers,
Nashville, Tennessee*

THERE is an increasing recognition, on the part of workers in child health, of the tremendous influence which the classroom teacher has in encouraging good health habits, influencing the child's attitudes and desires, contributing to his ability to cooperate intelligently, and stimulating a real enjoyment in the building and maintaining of a fine strong body. The more progressive schools are now initiating their own health programs, and are calling on specialists for assistance according to the needs of the children. This places the teacher in the strategic position of determining to a large extent what these needs are. It is therefore evident that the results obtained in any school health program will largely be determined by the teacher's education in health. The most crucial point in which to give this instruction is in the plastic stage of the first years of teacher training.

Teachers' colleges and normal schools are vocational, presumably preparing young people to administer education, to build citizens. Among their responsibilities in realizing the objectives of education, the health of children takes a prominent place.

The problems which confront the person who is interested in preparing these young people to assume this responsibility are seen in three aspects: first, the basic training and experience given on the college campus; second, the observation and practice afforded in the demonstration school as the testing ground of all theory previously taught; third, the field itself in which the student finally proves the value of instruction received. The problems of teacher training in health will here be discussed from these three standpoints.

The conditions surrounding student life on the campus loom very large in any consideration of education of that student in health. What he is experiencing daily is being written into his consciousness in vivid terms in comparison with the impression made in many class periods. Much of his experience is definitely connected with his

environment which besides being a silent force in education, should also be a reservoir of opportunities for teaching health actively. The public health supervision of the campus should exemplify the very best practice of scientific principles, and should be several leaps ahead of many fields in which the student will work in the future. In other words, it should set the pace in the development of healthful programs for pure water, food supervision, garbage disposal, good ventilation, sanitary cleaning methods, and communicable disease control. The college campus in reality represents the problems of a small community. In accordance with the way in which these problems are solved, the students are learning positive principles of public health administration which will later be translated into the practices of their communities. A teachers' college in which this vast field of learning is used to its fullest, should be able to pass creditably a survey of fountains, lavatories, water and milk supply, cafeteria, garbage disposal, dormitories, infirmary, and general conditions of cleanliness on all parts of the campus and in all buildings.

These environmental conditions, besides furnishing valuable teaching material, directly influence the personal hygiene and health of the student body, and, as such, should be a matter of close concern of the health department of the college. It is through this department that students are initiated into the health examinations, learn their own physical rating, and receive instructions as to defects, habits, and attitudes related to study, recreational activities, diet, and other important points in daily life on the campus. The way in which students are able to carry out these instructions often depends upon the environmental conditions which may either help or hinder efforts to attain a fine standard of health, physical and mental. The college infirmary, while serving as an emergency measure, should also be an educational opportunity for students who for some reason have failed in maintaining health.

Every student should receive in his college course the essentials of personal, school, and community hygiene. The emphasis in personal hygiene should be mainly on promotion of health, with enough physiology to give the student an intelligent background. Credit should be given for the success which the student experiences in reaching and

maintaining a high degree of health while on the campus. Principles developed in personal hygiene should be constantly applied, not only to the life of the adult student, but also to that of children. In school and community hygiene courses, there should be constant applications to school environment and practices. These classes should frequently visit the demonstration school to observe the problems of water and milk source, food service, seating, lighting, heating, ventilating and cleaning, and should study the way in which they are met. Besides these courses which are *directly* related to the health education of the student, biology and allied sciences, psychology, home economics, agriculture, physical education, elementary education, and school supervision and administration make important contributions to the understanding of factors which influence the physical, mental, or emotional health of children. Instructors of these courses should share the responsibility of seeing that health principles taught in their classes are actually functioning in the demonstration school.

The content of these courses should also be influenced by problems of the field to which the students will go. State and local boards of health have first-hand information of outstanding community health problems, and are eager to pass this information on to instructors in teachers' colleges. A close relationship should exist between these official health agencies and the college staff. Points on which schools are having difficulty as shown by reports from the field should be brought before classes for discussion and tentative solution. For instance, a practical problem in an adjacent community may be that of scarcity of milk and fresh vegetables. Time should be given in food courses to a consideration of basic causes for such conditions. Undernourishment of children, as a common field problem, might well receive attention in courses in nutrition. Responsibility for swimming pool sanitation on the college campus, and in the demonstration school, offers a practical project for science classes. In communities in which hookworm, typhoid, and tuberculosis are outstanding problems, time should be devoted to these subjects in science and agriculture.

Even though instructors in all subjects seek to bring out the important health correlations, there is still a very great need for a course which shall bring together all the contributions, and show the student

clearly, first, how they are significant to the health of children, and second, how they may be applied. This course should be developed in close contact with problems of the demonstration school, and those of the field in which the student will be going. Methods should be developed to fit difficult conditions, as the rural school with few facilities, for such methods may be adapted to surroundings which are more favorable.

Students should, in this correlation and methods class, develop initiative and originality in planning and executing health exercises of various kinds, such as health games, dramatics, scrap books, field trips with follow-up, group projects, use of current events and newspaper articles, study of some life situations, survey of existing material for health correlations, bulletin boards, silent reading lessons, debates, discussions, and demonstrations, and the use of the auditorium period for presenting any of these. Health examinations and inspections, playground equipment, the hand-washing and hot lunch service of the demonstration school should be observed and discussed preparatory to later participation. Strong work should be done in correlation with the various school subjects, such as those of science, social studies, physical education, home economics, as well as kindergarten and primary activities, so that the students will realize the broad way in which health as a quality of living is tied up with a multitude of life situations. In other words, students should clearly see health, not as a subject bounded by arithmetic on the one hand and geography on the other, but as a condition to be reckoned with twenty-four hours out of the day, and which constantly presents untold opportunities for influencing the lives of children. If all young teachers could go out with this conception and a genuine enthusiasm to meet the conditions which arise, the problem of child health in our schools would be well on the way to solution.

The second aspect of teacher training for health education is found in the demonstration school, which should be a testing ground of theories taught on the campus. Upon the functioning of health in each class room depends the impression which the student receives of the practical application of these theories. The demonstration school represents again a small community in which all the principles of public

health are carried on with and by the children as far as possible, illustrating the methods of meeting such child health problems as are found in the field. Throughout, the spirit toward health as represented by the principal and teaching staff, and which brings about a real health demonstration, has an immeasurable influence upon the entire student body.

Every student participating in classroom teaching should take part in solving health problems which arise in that room. Each student should study children, under the supervision of the classroom teacher, who will utilize the service of special workers in the school. This study should include, among all other phases of the child's development, his physical basis, with as much family background and past history as possible. Such a study enables the student to individualize the child's needs in terms of physical changes, habits, and attitudes, and to make the health program a vital thing to each child.

The demonstration school should be able to measure achievements of the children in every class room in terms of some accepted standard in health. Every room should be able to show definitely what is being done to meet its problems, how far it has gone in improving physical condition, in building definite health habits, in influencing attitudes and desires, in increasing the child's intelligence in directing and interpreting his experiences.

In comparison with theory, the demonstration school leaves a vivid impression upon the student teacher. While it is placed second in our chronological consideration of aspects of the teacher training program, it should rightfully be placed first in importance. The success of the health program in the demonstration school will determine very largely the success of the health programs of hundreds of schools in the field. The demonstration school is the keynote in teacher training for health and should represent the culmination of effort on the part of the entire college and of the health agencies in the field in influencing teachers who assume the responsibility for the health of thousands of children.

The third aspect in the development of teacher training in health is found in the field, which is the final test of the student's ability to carry out what has been learned. Every teachers' college sends hundreds of young people out into most difficult territories where there

are no organized health agencies and where no immediate assistance is to be had in the solution of health problems.

To help meet this challenging situation, a plan has been tried in at least two states, of offering these teachers an opportunity to carry out an organized health project in the field under the supervision of the health education department of the college and on the basis of college credit. In localities where this work had been carried on, interest has been developed which has extended into other schools in that community and which in many cases has carried over in succeeding years without credit.

Up to the present, conferences in the development of the projects have been carried on at intervals at the college. As the field work grows, however, it would seem that supervision should be provided in the field, the supervisor representing to the teacher an immediate helper, consultant and advisor. This supervisor should help the teachers to tie up their work closely with local health agencies, and should also help to unify the work of all contributors in the interest of the children's health. Ideally, this supervisor should serve jointly the college and the state departments of health and education.

The field reports of the supervisor should bring into the state and college departments valuable data which should guide them in future efforts. A state health standard is of great value in establishing definite objectives to guide these projects. Every worthwhile project should show some results which contribute to the attainment of this standard. In reality, every time a teacher launches a project in the field, she becomes an active assistant in carrying on the work of the state departments in health and education. Considering the great number of teachers in the field, who have direct contact with children, the total results of this type of state-wide supervision can hardly be estimated. With the possible development of the health work on a state-wide basis, it would seem that a wise provision would be to have a health coordinator who would tie up effectively the work of all departments of the college, of the demonstration school, and of the field.

Whatever may be worked out as the possible solution of this problem, there should be evident a strong development which is definitely moving through the basic sciences and health courses in the teacher

training schools, on through the demonstration schools as the preliminary testing ground, out into the field where the supreme test of its value is made, and back into the teachers' college for critical analysis, re-valuation, and re-adaptation, thus contributing a rich source material for the further development of the possibilities of teacher training in health education.

SOME OF OUR DIFFICULTIES IN COMMUNITY-WIDE CHILD HEALTH PROGRAMS

MARY RIGGS NOBLE, M.D.

*Chief, Preschool Division, Bureau of Child Health, Pennsylvania State
Department of Health, Harrisburg*

IT is probably true that the majority, perhaps all of us here, connected in any close way with Child Health Work, rejoice in a definite trend toward community responsibility for this movement.

We are not to discuss the desirability nor the possibility of a community-wide program, but, being unanimous that such is wanted, we are here to consider some of the ins and outs of health planning.

What I have to say is based upon Pennsylvania's experience, with the full realization that there are many good ways of doing things. The variety of method in maternity and infancy work is impressive. The day of experiments is by no means past, but happily, we are growing more and more sure of what is worth while and what is not.

In the maze of methods we should be sure that we are aware of the big trends. Some of us, immersed in a mass of detail, need to be reminded frequently that we should lift our heads and listen to the far-seeing prophets who, beyond the jostle of Baby Conferences and Summer Round-Ups, and the multiplicity of special measures are getting an airplane view of the whole of Healthland.

It is not easy to get anything done in a community-wide way. Hard and up-hill work falls to the toilers trying to get everybody's cooperation for anything.

But this much can be said, that to combine on the little child (or shall we say the child and its mother), is probably, in the beginning

at least, among the less difficult undertakings in which to get official and nonofficial persons and organizations interested.

The amount of apathy regarding health matters still encountered is almost incredible, but one must believe that when parents really understand the truth about child care and about the damages wrought by uncorrected defects they will be eager to do what ought to be done. It is passing strange that parent qua parent seems to be one thing; whereas parent as head of his town Board of Health is sometimes an incomprehensible something else, opposing the use of any funds to save other people's children and his own. So there is still much room for demonstrations and campaigns, spectacularly to show, forcefully to teach. These are very suitably conducted by nonofficial agencies and lay organizations, perhaps even by entire outsiders; are episodes, usually shorter or longer drives, and need an entirely separate discussion not suitable at this hour. Smaller campaigns and lesser demonstrations, which are more precisely peaks of intensive effort in the course of a general program, will come up in another connection.

The aims of Child Health Work can be so simply and comprehensively stated that everyone can grasp without elaborate explanation exactly what we want to do, and, if we go about it in the right way, because so much centers in the little child, normal folk can be expected to be interested. Our practical aim, stripped of all but the naked skeleton, is to bring every child up to higher levels of well-being; to decrease illness; to decrease deaths. It is foolish to say that nobody wants little children to be ill, to die needlessly, but do not the actions of the parents often seem to belie these words? When they refuse protection against diphtheria, when they refuse to observe quarantine regulations, when they take no interest in understanding the elements of child care, the children's lives are in perfectly avoidable danger, but no one has been able to make it sufficiently plain to them.

Any program has a better chance for success if it has its concrete aims clearly thought out and plainly stated, and is likely to make a definite appeal because the aims are reasonable on the surface.

A newly organized Child Health Committee with its Public Health Nurse actually on the ground, burning to conduct successful Conferences on child care in order to teach the mothers, may expansively

claim that its aim is to lower the infant death rate; and that teaching baby care will do it. The first sounds technical and has to be explained. The second may not be true at the moment in that town. Some intelligent person may rise to ask if it might not be a good plan to try to find out first if there are some special reasons why babies die in that community and whether, if that be so, the Child Health Committee and the nurse might not better set about finding a way to remedy the situation. Such an approach will tend to clarify the aim and it may open up some absolutely necessary considerations before child life will be much helped by Baby Conferences.

Securing pure milk is a point in question. The death rate from infant diarrhea and enteritis has enormously declined in Pennsylvania, as elsewhere, coincidentally with the successful pure milk campaigning. Nobody guesses that baby lives will be saved if a town, with unclean, unsanitary milk supply, and an annual showing of many deaths from diarrhea and enteritis passes a model ordinance and goes after clean milk!

The appeal for pure milk based on the baby's needs is easily understood, clear, precise, fundamental. But whose business is it? Clearly it belongs to the Board of Health and the City Council—official agencies. It may take tremendous pressure for public opinion roused by nonofficial agencies.

Take another example, what chance has a Child Health Conference with the most perfect instruction to earnest mothers concerning communicable disease, if there is no concerted community action to control epidemic outbreaks in that town set in motion by the local Board of Health? To strike a blow, therefore, at rampant epidemics should be made to appear to be good common sense in the eyes of the business man and his wife, whose babies are concerned and they will probably listen if we try to enlist their help and go at it in the right way. Also the business man's alley neighbor must be willing to abide by the quarantine measures and do it understandingly because some one got at him in the right way too, and not necessarily the official agency.

A concrete, well-defined and well-understood aim to secure fundamentally right conditions may have either to precede, or to run parallel

to, the conducting of special measures in Child Health Work In other words, in any Child Health program there must be brought about such a situation in the community concerned as makes the achievement of health for the individual children reasonably possible, else to what end shall we attempt to teach mothers how to bathe, and feed, and clothe, and air, their offspring, or try to inspire the older children and adolescents to want to be well.

It would be unprofitable to relate Pennsylvania's past ten years' experience in getting health programs under way I think we have no cause to regret all the talking we did when the movement was new and there were few signs of public or professional interest. We went straight to the women; we still go to them, and now also to the men's service clubs, to get the listening ear of the ordinary citizen. We felt the necessity of creating a wider demand for certain matters pertaining to our children's welfare in order to force certain issues to the front. Talking, argument, persuasion with patience, persistence and fearlessness, will always be needed, to individuals sitting down face to face, and to groups, in addition to all other publicity methods and devices.

There may be some question as to why we should first secure the interest of the organized nonofficial groups as the best means of awakening substantial public sentiment. It is still true that local official recognition rarely comes with ease at the beginning, and there is little question but that the lay public and the nonofficial organizations, rather than the medical profession, are likely to take the initiative.

We remember with regret some things in those early days which we no longer consider advisable We applauded the town where they worked up a Baby Parade, held Contests to discover the best baby, and we adored it as a sign that the idea had taken when the Mayor at the head of a long cavalcade of baby coaches and runabouts was so enthusiastic that he began, then and there, to talk about a bigger and better parade next year. No one thought of the damage to the very object of all this noise, confusion and excitement, sacrificed to entertain the public, and, as was fondly hoped, to arouse steady support for the infant welfare movement.

Much water has flowed over the dam since then and among the varied experiences there stand out certain conspicuous facts

One pertinent question here is as to what combination of official and nonofficial agencies is calculated to bring out the best progressive community health programs. There is no one answer to that. The combination of efforts which succeed today may be quite changed tomorrow. The State Departments of Health very properly supply the stimulus and remain advisors and supervisors of local undertakings; but we consider it progress when local responsibility keeps increasing while outside official help is less and less needed.

Our Child Health Conferences were formerly almost invariably in charge of the state nurses, but of the four hundred odd permanent Child Health Centers now in operation, the majority are conducted by other agencies. The transition from state to nonstate control was not always easily accomplished. Sometimes it became imperative to turn over whole groups of Baby Centers in an entire county from the state to the nonstate group, not because the community felt ready and asked for it, but because the state was obliged to withdraw for one reason or another. This occasionally caused local hostility and the feeling that the State Health Department was leaving them in the lurch by deciding to withdraw the nursing service and bid them supply their own. It proved to be the starting point for local resources to come to the surface so that the work need not stop. We have watched Visiting Nurse Associations, Red Cross Chapters, Community Nurses and Tuberculosis Societies include Child Health in their programs. It is well known what excellent public health work they do with children. Long may they live to do nonofficial, effective, indispensable work!

The State Department has conceived it to be its rôle to endeavor to maintain high standards of procedure through the help given by personal service, the use of standardized techniques and the supplying of literature and record forms.

We first asked voluntary service from the doctors and in spite of the many physicians who were not interested or were openly hostile, it has been possible, ordinarily, if not invariably, to secure service.

We have never believed, and do not now believe, that maternity and infancy work or any other part of the Child Health program should be taken out of the hands of the doctors. The core of the Child Health Center idea is to discover the physical condition of the child, make it the text on which there shall hang instruction in protection and prevention to its mother, but never to supply any medical treatment, or advice for conditions found. Where doctors have opposed the Child Health Center work we believe it has invariably been because they did not understand that a well-conducted Baby Conference brought work to their offices, and never took it away from them. It will be deplorable if a Child Health Center so conceived should be regarded as a philanthropy. The richest mother as well as her less privileged neighbor should be able to learn baby care.

The opposition of the doctors has been one of the saddest features of the whole enterprise. Let me emphasize again that it is almost always because of failure to understand. Some of you have been fortunate perhaps and have had no rough sledding in this particular. Many of us know that opposition has not all died down.

We should not omit to mention that it has been sometimes the fault of the workers, even of the Conference doctor, who has failed to draw the line properly between the preventive and educational work, and medical advice. The minute that line is crossed he is poaching on the preserves of private practice. The correction of defects belongs to private, dispensary, and hospital practice and not to the part of the Child Health program to which we are now referring.

We have reached a further stage in Pennsylvania where here and there a County Medical Society has announced that it will take to itself the full responsibility for deciding what shall and what shall not be done in all health matters within the county limits. This is an admirable stand much to be desired, but the pains of readjustment in the local community are by no means being borne in silence.

The lay organizations, successful beyond any question, have so far conducted their work without interference from the medical profession. The Visiting Nurse Association or the Red Cross Chapter or the Tuberculosis Society, have made their own programs, secured the help of individual doctors and put over a wonderful piece of work

as the annual reports will show and "now," they ask, "shall the medical profession step in to dictate?"

It is unthinkable that in the long run responsibility in the broadest sense of the word should not rest with the organized medical profession—responsibility for standards of procedure, for limitation of activity, for division of labor, for determining the status of the various parts of the service as they relate themselves to community well-being in general, and for each age-group of citizens.

To pioneer in a new venture, to demonstrate what needs to be done to determine ways of educating the public, can be undertaken by nonofficial organizations or outsiders, but, after all, the ones on whom the whole final undertaking must rest are the physicians. The service and social organizations, the cultural groups, the churches, and so on through the whole long list, have a share to contribute in both time and money, but the doctors as organized in the medical societies are those who should have the final say.

The preschool child is just beginning to come into his own and the next few years are sure to see a great gain in the supervision given to the years from two to six. It has been a bad gap that is being closed up now.

This particular part of the health program has hitherto presented great difficulties which are beginning to disappear. The experts—doctors, psychologists, psychiatrists, teachers—have been studying early childhood and the results of their research are available in books and pamphlets. The needs of that age now stand out clearly as quite different from the infants.

Without intent the preschool child has often almost been lost in the shuffle at the Health Conferences. Some of our Child Health Centers swarmed with babies, with only here and there an older child; he did not fit into the baby scheme of things and was usually left at home. Before he quite dropped from sight he was pulled back on to the stage and is now in the limelight, a little person of much importance!

He needs less frequent physical examinations, but he takes much more time for a complete visa. After his second birthday he needs weighing and measuring but two or three times a year. His mother

needs an entirely different stock of information regarding his care, with a good deal added since we have come to realize the importance of mental hygiene. For this part of the education of the mother, large and well-organized plans are being made. Parent education through nonofficial agencies, inspired and speeded by the Department of Health and the Department of Education is coming right to the fore. Mothers' study groups in clubs, Parent-Teacher Associations, and so forth, are increasing rapidly in popularity.

Fortunately for the child, and for those concerned with seeing that he receives the right attention, the preschool group is splitting up into sections. The six-year-olds have been appropriated by the National Congress of Parents and Teachers. We are all familiar with their Summer Round-Ups for the new school entrants of the autumn. The public kindergartens and the nursery schools take the next youngest—the three-, four- and five-year olds. We can reasonably expect that these desirable features of the school system will become more and more common, paid for by tax money of course and not by private funds. As fast as school boards include kindergartens so fast will it bring to the fore the very children, the preschoolers, whom it has been so hard to find, and make health plans for. Kindergartens should do away with the necessity for the Summer Round-Up paroxysms.

Let there be no misunderstanding concerning the Summer Round-Ups. No one believes that this "last-minute overhauling" at six years is ideal but it is, temporarily, a most needed and successful undertaking. Given six years of neglect, from which hundreds of thousands of children still suffer with the consequent piling up of defects of all shades of seriousness, it is imperative to do something before this little army enters school. It is an immense help to the school boards and school teachers. We need not labor the argument that the load of correctible defects in the early grades slows down the whole school machinery.

Automatically of course these preschool clinics will be eliminated as we come more and more to care for the child each year from birth. But speed the Summer Round-Up until it is no longer needed!

Some states pioneered in this work before the Parent-Teacher Associations made it fashionable, and have full-fledged, well-system-

atized six-year-old, or preschool, programs as part of the school system. But there is still many a small town in all parts of this country, where no modern public health work has been done, where they could engineer a Summer Round-Up as a practical demonstration and do a complete piece of work, with a negligible outlay of anything except hard work. Advice from the Department of Health, the volunteer services of the doctors who are usually keen to assist in the demonstration stage, a list of children provided by the schools, who are obliged by law to secure names of the new entrants, a volunteer committee of interested women, the school house fitted up temporarily with simple paraphernalia loaned from the nearby homes—such is the bare outline of a community plan which may prove to be the entering wedge for all kinds of Child Health work.

Perhaps some who live in the smallest communities may feel that we are dismissing the Summer Round-Up as far too easy to do. A mere screening out of those who need teeth filled, glasses fitted, tonsils and adenoids removed and underweight remedied, and so forth, is but the fringe of the problem, whereas securing the corrections often presents a mountain of difficulty.

Some families will at once seek out their family physician, start treatment and pay for the service given. Some children are frankly in need of things their parents can not begin to think of paying for, and there are almost always the middle-grounders who can pay something but can ill afford much expense. Isolation, specialists and surgeons scarce, and costly—no one wants to minimize the difficulties! The smaller the town and the newer the idea, the harder it may be to secure a working plan.

Certainly the parents who can pay for the professional services of their family doctor should do so. Relief work should only be done for the truly poor. Doctors are willing to make nominal charges where there is actual necessity (While the Committee on the Cost of Medical Care is busy finding out about it and what can be done, we must do the best we can!)

Real Social Service, family case-work, a lot of wit and wisdom, will all be needed. Official and nonofficial agencies, the medical profession and the Service Clubs have been known to combine in a

peaceful and successful bit of community-wide work which has left a pleasant afterglow, a grateful school board and an exultant if tired committee.

The special preschool work is opening the doors for employing school nurses for twelve months in the year instead of for nine, as at present in many states. The follow-up of the year's school medical inspection in the grades is often not completed, and the new follow-up for the prospective first-graders can make a full summer program.

The part of the program which concerns the school child is of absorbing interest. It is one in which the combination of official and nonofficial responsibility, together with the relation of the medical profession to it, should surely be better understood. It bristles with controversial problems.

After all how far are we right in pushing on with medical school inspection as at present conceived: parents not present; an impersonal attitude toward the children; a complacency in having looked over the greatest number of children in the shortest possible time; a meager 35 per cent correction secured, because the gap is so wide between the discovery of what the child really needs and the parent's meeting of the need; and finally no link between what the inspector does and the child's life. He is old enough, this child, and smart enough to have his own little personal interest in his life, aroused by his teacher, on the one hand, who should be weaving health education into the whole curriculum, and, on the other hand, by the doctor's visits and the excitements of the inspection which should show him whether he has good eyes, good ears, good teeth, strong arms and legs, and so forth, and is likely to become a good baseball player. Perhaps it will never be appropriate to ask so much!

Medical school inspection, whatever else it omits to do, should point out a straight path to the office of the family doctor for every child who needs treatment. And there parent and child, in unhurried, personal give-and-take, with a familiar background because it is the family doctor, complete the work that began only in the school room. The official agency (the school) does a great work when it brings to light the facts about the child's physical condition. From that moment the parent should take the cue. Here is where the school

nurse, the instrument of the official agency, is proving to be the indispensable link in the chain, with home visits to the slow parent, homely counsel and encouragement and a many-sided help to all.

Consider the waste of the present medical school inspection not because the doctor does poor work, but because corrections are not secured. Schools are run with tax money. My child goes to a school which my money helps to build and run. The local school board, the State Department of Health and the State Department of Public Instruction, all run with immense appropriations of tax money, have a combined official responsibility toward the mind and body of my child which they have properly undertaken to meet. My vote has helped to pass laws which relate among other things especially to the engineering of medical school inspection each year for the children, and I, the negligent parent, after all this, which costs such mints of money, fail to take up my responsibility at the right point. Asleep at the switch!

Who, or what, is to rouse sleeping parents? Perhaps the school nurse and the visiting teacher will prove to be the best answer to this question. Then we must have thousands more of them.

As the official link between home and school, the school nurse embodies marvelous possibilities. If she is the right kind of person with her eyes open for everything, she can be a discoverer of needy preschool children in the homes of the school children she visits, and quite easily she may also discover expectant mothers. If the community clearing house machinery, the Social Service Exchange, or whatever it is called, is in working order, the school nurse can leave the door ajar for the right contact to be made for prenatal care.

School nurses are still very scarce commodities in many states, but here is where nonofficial organizations are rendering a splendid piece of service. In our Pennsylvania fourth class school districts State Nurses are doing school follow-up work, but it is too much of a load often times and both the Red Cross and Tuberculosis Societies are very generously helping out, as it distinctly fits in with their Public Health Program.

Of the work with older children in the late grades and high school there is less to be said because there seems to be less question as to

where responsibility should lie. The rise in importance of periodic health examinations and securing of the annual check-up bear importantly on the adolescent boy and girl. Health becomes a quite different matter here however, since the personal equation enters. The school is to be held officially responsible for the kind of health education out of which there should be sure to grow an enthusiasm for physical fitness.

The many ramifications of boy and girl activities, both organized and unorganized, emphasize physical fitness as the conspicuous goal toward which the youths are deftly steered in many of the groups. The Community Chest, or Welfare Federation, allocates funds to the Scouts and Camps and Y's and many other organizations.

A school boy should learn from all these sources that no system or agency can give him anything in the way of health. They can only make opportunities for him; he must go after it on his own account if it is to become his possession.

The physicians who make the physical examinations can direct the boys and girls to their family doctors for needed corrections and whether this work is done either by group or individual labor the doctor is entitled to remuneration as in the Child Health Conferences, or in Medical School Inspection.

What shall be said now of the problem of caring for the child in the prenatal period and the community's share in responsibility for that work? In the present situation, with the maternal and neo-natal death rates showing such slow downward trends, with the question so very far from being settled as to where to place responsibility, as to how far it is a matter for Federal and State concern, and as to which parts of the problem belong to the medical profession, one wants to fasten only upon one or two incontrovertible facts for mention.

For convenience in speaking there are three parts to the problem: prenatal care, care at the crisis, post-natal care. A reform is needed in each of these three divisions. This is not the hour to discuss better obstetrics, including puerperal care. These are largely for the physicians, the medical colleges and the hospitals to thrash out. We may turn our attention, therefore, to prenatal care where at least a very large part of the entire problem turns upon an understanding

of a body of facts only recently brought into prominence and admitted to be for popular consumption! Small town prenatal clinics are, frankly, not a success in Pennsylvania. They do succeed in the large cities. In any case they do not provide for speedy wide-spread information. The dispelling of ignorance is certainly the supreme need. Men and women must know the facts about the meaning and necessity of prenatal care. It must become common knowledge that women need medical supervision, in the ante-natal period, at the hands of their doctors. The demand for such service must be created by this understanding. Much is being done by the spoken word, by authoritative pamphlets and prenatal literature and by magazine and newspaper articles, and even by radio and moving pictures. All of these are good, but they have their limitations. Old-fashioned reticence, added to ignorance, makes a very resistant combination. Husbands and fathers, as well as wives and mothers must be brought face to face with the facts.

While it is reasonable to suppose that a working combination of official and unofficial forces may be secured which will eventually lead to real success in lessening the hazards of childbirth, for women now in the child-bearing group, at least this much may be said that we can today be paving the way for brighter days for the next generation by means of Little Mother League work (or by whatever name it may be known). There is scarcely anything more valuable or more fundamental to this problem than the conducting of courses in Mothercraft and Home-Making by Public Health Nurses with full instruction in prenatal matters and early infant care.

The school system will probably eventually include this work in the curriculum. Meantime individual towns can do it either under the auspices of the school or private initiative. It requires a Public Health Nurse endowed with teaching ability or a gifted woman physician with time to spare.

One does not wish to make any effort to prophesy what the future is going to show. One does not know how long present methods in Child Health Conferences will last nor just how prenatal service is best to be rendered, but one is sure the idea must persist. It is slowly growing stronger. Perhaps the schools will absorb the preschool

work. Some of us remember Dr. Baker's saying, years ago, that she saw no good reason why the public schools should not take over such health activities as their official responsibility. What must be remembered is that it be done in a more effective way than grade medical school inspection is usually done. Perhaps private practice can absorb some of the Conference work. It is quite safe to suppose part of it will go there for the previous check-up as well as the medical care.

Neither of these things will occur tomorrow. Meantime it must not be allowed to be said that we are not to conduct Baby Conferences and free Prenatal Centers without providing a definite substitute that will give infants and young children and their mothers adequate service.

When all is said, the Child Health Program should ramify through the whole of a city's life. It is not a little separate piece of work confined to the doing of a few simple things for children and their mothers. It is rather of sufficiently serious import and sufficient difficulty to warrant the governmental concern being given it in so many lands.

Because it involves every human interest at the springs of life, there is nothing in labor or industry, nothing in business or politics or international relations, but has its particular bearing on the problem.

Since we have now at the helm in our own land some one who is called "The Children's President" with another White House Conference on Child Welfare pending, may we not hope that the results of that Conference will be so far-reaching, that they will help to open up for every town and city in the land a better chance to know how official and nonofficial organizations and the doctors may better share in helping to keep well the world's children.

THE NURSE'S MESSAGE OF CHILD HEALTH TO THE FAMILY

HELEN CHESLEY PECK, R N

Executive Secretary, Infant Welfare Society, Minneapolis

THE public health nurse of today is recognized as an important factor in every health program. In fact, many of our leaders in the public health field consider her the essential factor, essential because the public health nurse is the best messenger, perhaps the only one who brings health information directly to the individual.

Especially is this true in the field of child hygiene. Publicity by way of the printed page will carry general information and will reach that group of the people who have the ability to apply the knowledge thus gained. Printed publicity often has to be interpreted, and here is one of the greatest missions of the public health nurse. Even those who can read understandingly too often prefer to apply advice to the needs of the neighbors' children rather than their own. The modern principles of child hygiene must be brought home so forcibly that each parent will realize his responsibility in the general movement.

No matter what field of public health she may find herself in, the nurse's part in the program is to apply that message directly to the family. There are innumerable avenues of approach by which the public health nurse, if she is alert, may reach the family. Whatever the opening wedge may be, or whatever duties are demanded of her in that home, she is bound to touch upon the subject of child health, either directly or indirectly. After all, is not everything that is being taught about child health applicable to adults, whether it be a question of vaccination against smallpox or how to control a temper tantrum?

Specifically, what is the nurse's message of child health? For the purposes of this paper the correction of defects, such as diseased tonsils, dental caries, impaired vision, underweight, and so forth, will not be considered. It is understood that these problems, once they have been discovered by a physician, are the job of every public health nurse. Today's goal is prevention. The public health nurse and

physician must help today's child to be born healthy and to remain so. There are well planned child hygiene programs for the prenatal and early infancy periods, but none for the preschool period. Consequently the schools discover in the child defects which developed during that time. Of late the parent teacher groups have been rounding up the children just before they enter school to see that they are physically fit for their new activities.

The nurse's message of child health is "regular periodic health supervision beginning before birth and continuing through life." In the prenatal period she teaches that regular visits to the physician are of fundamental importance in the care of mother and child. I cannot take time to elaborate on the prenatal program except to say that public health nurses too often take little responsibility in this program because they do not come directly in contact with the expectant mother herself. If each nurse would make an opportunity to leave the message in every home that she enters, that "a mother should consult her physician as soon as she knows she is pregnant," a valuable contribution would be made to maternal welfare.

The program for the period of infancy is perhaps the most popular in the field of child hygiene. The mother is most approachable at that time, probably because of her tiny infant's helplessness and her ignorance of her job as a mother. The nurse's message during this period also, is "regular periodic health supervision of the baby by the physician." The physician should direct the feeding and care of the infant, but there are many ways in which the public health nurse may supplement his instructions. She can do a great deal in influencing the mother's attitude towards breast feeding, both in this period and the prenatal period. I am sure everyone here knows how important a factor Minneapolis health workers consider breast feeding in a child health program.

The public health nurse must help also in establishing a proper routine for the child's day. She must include in her message all the various points contributing to this. Because she has the entree into the home she can see that the physician's advice is carried out, but it is particularly her job to teach the mother that everything she is doing for her infant today has a definite effect upon his future well-

being. For example, it is not enough to demonstrate the preparation of food. She must show that regularity in feeding and a right attitude toward food are equally important and once learned, will prevent more serious difficulties later on. Another illustration is her way of meeting the problem of sleep and sleeping facilities. The public health nurse must teach the mother that her child must sleep alone with plenty of fresh air and, equally important, that the spring and mattress have a definite effect on posture even at this early age

Physicians and the public health workers are agreed that protection against communicable diseases should be given during infancy, although very few physicians except the pediatricians are, as yet, practising preventive medicine and taking the initiative in urging parents to bring their children for these inoculations. Some physicians think this is an unethical procedure, or fear they may appear mercenary. The very nature of the public health nurse's contact with the family makes it possible for her to urge these inoculations as preventive measures for health.

A knowledge of mental hygiene teaches us emphatically that the time to establish correct mental habits is in early childhood, which means infancy and the preschool period. The public health nurse has a very definite responsibility in this phase of health work. She can instil the proper attitude in the mother even during the prenatal period. Physical and mental growth cannot be separated, yet most parents seem to take no responsibility beyond the child's physical needs after he has acquired the ability to walk. If he develops any unpleasant type of behavior the parents usually attribute it to his mean disposition. For example, it has been found in the behavior or habit training clinics that feeding problems predominate, and this is probably because this type of problem is most evident and most distressing to the family. Usually a further study of this feeding difficulty will show that the child presents other problems in behavior, and that the whole maladjustment is due to lack of understanding on the part of the parents in the earliest training of the child. Parents have been taught for years that growing children need spinach and carrots, but the school nurse still finds it necessary to spend much time teaching children to eat vegetables. How much easier and more economical if public

health nurses could teach parents how to secure a healthy attitude toward all foods during the child's preschool period. At present there is not time in a public health nurse's day to study the problem child, but she should take time to teach the importance of early training in correct mental habits.

Public health nurses are so busy caring for the sick, trying to see that defects are corrected, maintaining first aid clinics in industry, taking patients to doctors and dentists, and so forth, that they have little thought for prevention. The nurse tries to teach as she works, but her mind is too crowded with the responsibilities of acute illness. The most pressing needs come first, and what energy is left over can be given to instruction or prevention. Until our programs can be arranged to allow equal emphasis on prevention and cure we cannot expect our public health nurses to be adequate teachers of child health. Most public health nurses do not have a health attitude of mind. We find this especially true of the new nurses who come to the Infant Welfare Society. Those who have been accustomed to enter homes to give bedside care of the sick are not prepared to enter homes to teach health only. Public health nurses also have insufficient knowledge of the normal child, and consequently do not know what to expect of the normal child as he progresses from one age level to another. I recall a nurse who had had extensive county experience before coming to the Infant Welfare Society. While assisting in the record work after a clinic she remarked, "I suppose this means tabulating the defects." She could not realize that there were clinics for well children who had no defects.

The training also of the public health nurse has been deficient in this respect. There is not enough time or experience provided for her to acquire an aptitude for health teaching. In the past her training has been concerned primarily with the care of sickness and the correction of defects. The nurse has been taught to adapt her hospital experience to the needs of the public in their homes and to instruct the family against the spread of disease. Not enough emphasis has been placed on prevention or positive health. The public health nurse has had little opportunity to observe what health supervision means.

Today's slogan is the periodic health examination and a public

educated to appreciate health. Who can make this ideal a reality? The public health nurse through her child health message. Prenatal clinics and the well child clinics are the foundation of adult health. School inspections should be only a continuation of the supervision of the well child.

In trying to outline the nurse's message of child health I have not forgotten all the difficulties she must encounter. When I urge her to "insist that the mother have her well child examined periodically by a physician," I know that this is impossible for many rural mothers at present.

I have tried to put before you as the nurse's message of child health a program of prevention with regular periodic health examinations beginning before birth, as the keynote; and building on this, a knowledge of the well child's physical growth and mental development, so that the public health nurse may lead parents to a better understanding of their responsibilities.

HOW CAN THE NURSE HELP THE HEALTH OFFICER TO GET HIS MESSAGE ACROSS

FROM THE STANDPOINT OF THE CITY

HENRY F. VAUGHAN, D.P.H.

Commissioner of Health, Detroit

THE evolution of public health procedure since the establishment of the first officially organized municipal health department in the United States in the middle of the last century has been ably described by many authors. With the creation of the Metropolitan Board of Health of New York City under the able guidance of Dr. Stephen Smith, Founder of our own Association,* public health became administratively established as a recognized executive division of our city government. In those prebacteriology days during which philosophic discussion played such a large part in determining the ill effects of epidemic condition, it was but natural that the sanitarian placed

*The American Public Health Association

great stress upon the influence of environment on man's health. Departments were organized to combat nuisances, to supervise systems of scavenging, to regulate packing houses and rendering plants and, in general, to supervise features of municipal sanitation. Some attention was paid to the improvement of water supplies and the disposal of sewage. These latter activities were, of course, successful in reducing the death rate from typhoid fever and other water-borne and filth diseases. The features of the then existing health program were such as we would now group among those performed collectively by the city administration, that cannot be efficiently administered by the individual citizen. No heed was taken of the important rôle which we now know the individual plays in serving as a vector for the conveyance of infection. The researches of the bacteriologist revolutionized our conception of the mode of transmission of most epidemic diseases. Thus there was created a more logical system of quarantine and isolation based upon bacteriologic control. Such an administrative system enabled further progress in the control of disease but was not without its limitations as it was soon discovered that quarantine of clinical cases in itself would not suffice to prevent the spread of infection. The healthy carrier, the mild case and the missed and undiagnosed case, played too large a part in the dissemination of infection. An appreciation of the limitations of quarantine together with the discoveries of the immunologist in the art of stimulating artificial protection against disease has finally lead the public health administrator to an appreciation of the fact that education is the key note on which all administrative policies of the modern health department should be built.

It is in this third developmental period of public health administration that the nurse is playing so important a part. While it is true that the layman continues to picture his health department as largely engaged in the supervision of epidemic diseases and the abatement of nuisances and offenses to the eye and nose, the administrator himself appreciates that his principle task is not solving the vexing and annoying problems of the unusual but devastating epidemic but rather to create an enlightenment in the public mind so that the individual citizen will appreciate his responsibility in keeping himself well and thus

serving as a unit of a healthy community. Public health administration is becoming more and more a problem in salesmanship. The city or county which is doing the most to teach its people the causes and means of control of disease and which is inculcating into the daily habits of its children the practice of hygienic living, is enjoying more vigorous health and is gradually lengthening the life of its citizens, thereby reducing its own death rate. There are many ways of selling health to the public. Popular health instruction through the medium of the printed page has done much to modernize the layman's conception of disease prevention. The daily or weekly newspaper as well as the health department bulletin, the movie, the radio and the lecture course play an important part in the health education program. It can, however, be said without fear of contradiction that the most important single factor in teaching positive health is the public health nurse.

The Appraisal Form published under the auspices of this Association is generally recognized as an instrument which aims to express in terms of group judgment the value of the health program being administered by any city or county. An examination of this Appraisal Form would indicate that there is no division devoted exclusively to public health nursing. On the other hand a careful analytical review of the individual items incorporated in this measuring stick would indicate that the public health nurse is associated with activities which represent nearly 50 per cent of the entire score of the appraisal. The teaching value of the public health nurse has become so well recognized that in order to have a good local public health program between 40 and 50 per cent of the appropriation of the health department should be devoted to a division of nursing. It may, therefore, be concluded that we as health officers have agreed that the public health nurse constitutes our most important asset in health education.

Are we using the resources and ability of the public health nurse to greatest advantage? If the housewife is considering the purchase of a new washing machine, she may obtain some impression of the type of machine she should have from advertisements which appear in newspapers or from hand bills left at her home, but, after all, the thing which convinces her above all things is the demonstration and sales talk of the vendor at the store. Salesmanship through demon-

stration and expression is the most profitable means of establishing opinion. As health officers we have public health nurses as our representatives entering every home of the community. We may have a specialized nursing service in which the individual nurse has been taught to function in but a limited field such as the control of the communicable diseases or visiting at the home of the tuberculosis case. We may have generalized nursing which is now recognized as a more effective and efficient form of service and in which the individual nurse may perform duties in each of the various divisions of the medical service such as tuberculosis, communicable disease, child welfare and school services. The success with which the nurse meets in selling herself to the housewife and selling her personality and her story to the family depends upon her tact, her judgment, her training and above all, her method of self-expression. It seems to me that too many health officers have lost sight of the fact that the public health nurse is the sole representative of the health department who reaches the average home. The family will naturally think of the health department in terms of this representative whom they have met. Up to the present time it has been the sanitary inspector who noses about the premises to ascertain whether the garbage receptacle is properly covered and whether the premises are strewn with filth or trash which is considered inimical to health. No wonder that the citizen has conceived the health department as an organization of law-enforcing officials whose duty it is to make life miserable for those lax in the care of sanitary appurtenances and an organization which occasionally sends around an officer to tack up a quarantine sign and inflict further unwelcome hardships upon the family life. The public should think of the health department in terms of the nurse as an educator, as a friendly guide and consultant to assist in solving the many simple but perplexing problems which accompany motherhood and child-raising. Let us substitute the vision of the sympathetic nurse for the unwelcome shadow of the law-enforcing officer. Some health departments have been endeavoring for the past few years to transfer the supervision of nuisances which are merely aesthetically unpleasant in contra-distinction to those conditions of our environment which are inimical to our health, to the police department of the municipality. The health

department because of the misconception which existed at the time when our official health organizations were first established, has fallen heir to many practices which are not rightfully its own. The public should look to the police department for matters of police protection including the safeguarding of the human sensory system against nuisances created by others. The citizen should look to the health department to satisfy the thirst for knowledge regarding disease prevention and vigorous health.

Are our nurses properly instructed so that they can serve as the sole representative of the health officer in the home? They should know something about their own department, its purposes and aims and about public health in general. They should have some knowledge of vital statistics; there should be some conception of the meaning of death and birth rates. They should not be expected to learn a long list of figures which of themselves would be rather dry and uninteresting but they should know whether 15 per thousand is a high or low death rate and whether 40 per thousand births is a high or low infant death rate. They should have some knowledge of what the city is doing to supervise its milk and food supply. They should know what is being done in the field of sanitation and industrial hygiene, whether poor housing facilities have any relationship to ill-health and, if so, what are the features of ill-housing which most closely effect the incidence of disease. In short, the public health nurse should be conversant with the various activities of not only her own health organization but also those other organizations, whether official or non-official, which are assisting in the local health program.

Every health department should have a well established program whereby the new nurse receives instruction in public health administration and in the various organizational divisions of health work. These courses of instruction should be compulsory not only for new nurses but a shortened course of instruction should be given to the older nurses in order that they may be kept in constant touch with newer developments and posted concerning the changes in departmental policy. If a program of this character is not effectively carried forward by the health officer, he is missing a wonderful opportunity to sell public health to the people of his community.

Doctor Hastings has frequently made the statement that in order to be successful as a teacher of health, the nurse must be a good conversationalist. I have heard Doctor Hastings state that he was not primarily interested in seeing the credentials of the new nurse employed by the Toronto Health Department, although it goes without saying that the credentials must be of the highest in order to obtain appointment in that Organization, but he was particularly interested in having a five-minute conversation with the new nurse to ascertain her ability of self-expression. We are not suggesting that the public health nurse become an incessant talker or even a mechanical doll, but we are suggesting that she be taught the rudimentary facts of public health administration seasoned with much information of local application so that she may intelligently act as a saleswoman for the health department

HOW CAN THE NURSE HELP THE HEALTH OFFICER TO GET HIS MESSAGE ACROSS

FROM THE STANDPOINT OF THE COUNTY

H. S. MUSTARD, M.D.

Assistant Commissioner, Tennessee Department of Public Health

IN discussing the problem of how the nurse may best help to get the health officer's message across, the discussor will, if he be wise, throw out certain safeguards which may serve as sanctuary for him in the future, for almost any unqualified statement in this connection may return as a boomerang. One of the first qualifications that should be made in discussing this subject is that the success that crowns the rural nurse's work in getting the health officer's message across must depend to a very great extent upon the message itself. Not only will the nurse's limitations and opportunities be influenced by the nature of the message, but a very large measure of her success will depend upon the terms in which the message is expressed. For this reason the rural health officer who wishes to get the best type of service out of his nurse or nurses must consider it a primary obligation to give

the nurse a clear understanding of objectives in the whole program. He must further lay down certain approximate standards of performance by which he may measure the nurse's activities and accomplishments and by which she may check up on her own work. It not infrequently happens that a rural nurse is rated as a poor performer when actually she has been doing a high grade of work under the trying circumstances always associated with vagueness of program, indefiniteness of schedule and lack of clear cut objectives. The health officer, too, must keep ever before his rural nurse the difference between activities and accomplishments and he should be able to present to her periodically studies of her work so that she will be able quickly to realize what she has accomplished, wherein she has failed and in what services or activities there is need for adjustment.

A second factor that plays a considerable part in the nurse's interpretation of the health officer's message is to be found in the administrative relationship between the nurse and the health officer. The nurse should be made to feel that she is an integral and important part of the rural health program and that her first professional loyalty is to her health officer and the program that is being undertaken by the rural unit as a whole. This is mentioned specifically because in certain states there seems to be a tendency to develop and encourage the nurse's first loyalty to a state nursing service and a minor loyalty to the health officer in the local unit in which she works. In this connection and in justice to the splendid group of nurses who are engaged in rural health work, it should be emphasized that the health officer must possess such qualifications as to justify this professional loyalty. It must be confessed that in certain instances the highly trained rural public health nurse has been faced by a difficult situation when her common sense has forced her to realize that her health officer was not the last word in energy and efficiency. Of course the opposite side of the picture could be given where the health officer is highly competent and his nurse only mediocre. In either event better training and selection of personnel will do much to solve the problem.

Assuming that we have a competent health officer and a competent nurse and that the message of health is capable of clear expression in terms understandable by the general public, the stage is set for

almost limitless service by the rural public health nurse. Naturally it is she who comes into most intimate contact with the greatest number of people in the county and therefore day in and day out she serves as teacher and apostle of the gospel of public health. It would be impossible in so short a space of time to discuss all the ways in which she may serve but one of her most important functions is the development of community organization.

Through such organizations she or any member of the health department staff has a most valuable avenue of approach to teachers, pupils, parents and the community at large. Her best service with these community organization groups, however, will develop only in proportion to the definiteness of the program and projects that she has presented for community teacher or pupil participation.

In closing, it should be emphasized that to weld the rural public health nurse into the community and into the health program she must live and work under reasonably satisfactory and happy circumstances and, further, provision should be made so that she will feel that there is opportunity for advancement both professionally and financially. Possibly one of the reasons for turnover in rural health personnel is that many of our efficient rural nurses feel that they have reached a dead level in compensation and there being no financial future they attempt to compensate by change of environment and scenery.

THE ELEMENTS IN THE HOME CONTROLLING CHILD HYGIENE ACTIVITY

AMELIA GRANT, R N

Director, Bureau of Nursing, Department of Health, New York City

FIRST attempts in organized child welfare work had to do largely with the physical care of infants, the aim being to reduce the infant death rate. Efforts were centered mainly on community sanitation, providing a clean milk supply, securing better housing conditions and the like. These improvements in sanitation brought about a marked decrease in the death rate, but it was realized that the child

welfare work must be more inclusive; that it should not only prevent infant deaths but that it must secure for the infant the best possible chance for complete health, and the program has rapidly extended to include intensive home supervision and parent instruction. This growth has come as it has in other phases of public health work, as science has given us new facts concerning child needs and experience has given us new methods of practice.

Today, child welfare work includes a variety of services organized for the purpose of assisting parents to provide not only proper physical care, but an environment which will give the child the best possible conditions for growth and development, free from either physical or mental handicap. The child is considered in relation to his surroundings, his habits of life and his personality and character traits. Groups of experts in the several fields most intimately concerned with child welfare are beginning to come together to plan and work out a program in accordance with this larger objective.

We have learned that the child needs health protection and health education during the entire period of growth and development; that no one period of childhood can be considered more important than another. There is a greater community interest in providing a consecutive and continuous program of child care in the prenatal, infant, preschool, school and adolescent periods. Good health during one period is looked upon as the best assurance of good health during the next older period. Health during adult life is probably determined by the total health achievement during childhood.

Child Hygiene is truly preventive health work. The chief effort in this program is the education of the parents to the end that every child may be brought up in a home in surroundings best adapted to his needs. To a large degree the standards of the home determine the child's standards of living and the care he receives in the home determines his health.

The child is a plastic being, easily moulded and extremely sensitive to his surroundings. Environment does not create new characters, but it does determine which of the potentialities that are inherited shall be developed and to what extent. Physical and mental traits can be accentuated, altered, controlled and sometimes eliminated under right

conditions. So important is the influence of environment that the whole modern public health and hygiene movement is based upon its influence, upon the welfare of the individual. In considering the welfare of the child the importance of the home can hardly be overrated.

During the first years of life, family power is greatest. The infant is almost entirely in the control of his parents and the home is his world. Born with a certain inherited make-up, what the child becomes within the limits imposed by this inheritance depends upon the love and affection, the intelligence and understanding of those intrusted with his care and responsible for his guidance. The home holds within itself those elements which tend to influence most strongly the general, physical and mental states of the child. Intangible as the factors of a home may be, their importance to the infant has been demonstrated. No satisfactory substitute for a home as a suitable environment for an infant has been found. Institutional care for the dependent child has practically been given up and home care with foster parents has taken its place. The task before those interested in child hygiene is to make the home as nearly ideal as possible. This is a complex and difficult task. In the first place the home is subject to strong social and economic forces which are difficult to control and secondly we do not know exactly what the elements of a good home are, nor the relative importance of the various factors included in a home situation. We need sociological studies to give us more definite information in regard to the home and environmental factors which may influence child health. Even with a more exact definition of the elements of an ideal home it will still be necessary to consider the problem of individual differences—for two children brought up in the same surroundings under practically identical guidance will be affected quite differently. However, we do know the effects of overcrowding, lowered standards of living, improper feeding, lack of fresh air and sunshine, improper clothing, nagging, scolding, the general lack of proper child training and many other conditions which could be enumerated. It is therefore our responsibility to deal with these problems as effectively as possible. Our programs of work must be adjusted to provide those services which will most directly

contribute to the betterment of these conditions, and will help parents to understand the child and to care for him more intelligently.

In addition to medical service for the supervision of the physical health of the child, habit clinics, nutrition service and an enlarged educational program are now considered important activities of child welfare centers. Such centers should be places where the mother may secure advice on the best means of dealing with the particular problems associated with care of the baby. These problems may concern his physical health or they may relate to his training, and habits, and in fact they will most probably relate to both for they are almost inseparable. The public health nurse is the link between the home and these centers. She brings the mother into contact with the center and helps her to state and define her needs and then she goes with her into the home and helps her to apply to her particular situation the instruction she has received at the center. It is relatively easy to give health advice and it is easy to organize and conduct classes for mothers. Instruction is not difficult but it takes a lot of good judgment, patience, cheerfulness and courage to apply the knowledge gained to a family situation, and the mother needs help in adapting the child and his surroundings to each other.

The importance of regularity in the baby's daily routine is easily understood, but with the thousand and one demands made upon the mother's time and interest, she must plan wisely if a regular schedule is to be followed. The mother may well appreciate that the child easily forms the habit of crying because he wants attention and knows that such a habit is bad for the baby and extremely annoying to others in the family, but some member of the family becomes ill and the child's cry disturbs the sick person and before the mother is conscious of what's happening the baby is demanding and receiving much more attention than is good for him; he may even be given a pacifier, and so one bad habit leads to another and the child training program is topsy-turvy. A home service to help the mother apply the knowledge she has gained to her own situation and to encourage and direct her in making the necessary adjustments must supplement the advisory and educational work of the health centers.

Sometimes we are inclined to think of the schools as the only

source of education, but greater emphasis is now being placed upon what the child has learned before he enters school, and maternity and infant welfare centers take a conspicuous place in the health education movement. The first instruction given to the mother usually deals with the physical care of the infant for interest in physical care predominates. The baby's helplessness is in itself an appeal for physical care. From this interest, the educational program widens to include child training, home play, home management, cooking, the fundamentals of public health protection and even adult hygiene. The parent begins to realize that the physical, mental and emotional life of the child are interdependent. She learns that the care of the child can never be entirely physical. That the parent in giving the child shelter, food and comfort, is also teaching him. Habits are being formed. They may be good habits or bad habits. They are learned in the same way. As the instruction of the mother continues the effect of the atmosphere of the home is explained and she learns why it is that malnutrition may be due to a quarrelsome family rather than to improper food "or a natural tendency to be thin." The relationship of the child to his surroundings takes added importance.

There is some difference of opinion as to the groups in the community to receive this infant welfare service, but there is a growing tendency to offer the service to all groups, particularly those phases of the work which are strictly educational. Neither instinct nor social positions relieves the necessity for training and it is neither wealth nor poverty which makes an ideal home, but rather the intelligent direction of either. Mrs. Woolley says that it is as silly to expect that the maternal instinct will care for the child as it is to expect the acquisitive instinct will earn a living for the family.

The more progressive child hygiene service aims therefore to offer an educational service to the entire community and to adjust its program to meet the special needs of the groups. Limitations of the service, for no community is fortunate enough to make this service as intensive as might ideally be desired, are based upon the home conditions and the intelligence and interest of the parents. Some homes must be visited frequently and given closest supervision in order to secure anything like adequate care of the baby. Other homes need

to be visited only occasionally and the mothers will have sufficient interest to attend classes and to seek help when problems arise. Under guidance the parent usually develops an intelligent attitude toward medical supervision and a real interest in modern educational methods for child training.

The larger program for child welfare aims to instruct the parents in the best methods for the protection of child health, mental and physical, and to assist in bringing about those environmental conditions which will have the most favorable influence upon the child. The greatest hope for accomplishments is the fact that specialists in medicine, nursing, social work, psychology and educational method are coming together in planning and working out a well-balanced child welfare program.

THE RÔLE OF A SCHOOL SUPERINTENDENT IN A SCHOOL HEALTH PROGRAM

METHOD OF PRESENTING HEALTH FACTS TO ELEMENTARY, HIGH SCHOOL AND UNIVERSITY STUDENTS

R. G. JONES

Superintendent of Schools, Cleveland, Ohio

THREE parties are interested in a contract which calls for the expenditure of levied, endowed, or personal funds for the purpose of promoting health education. The first is the individual, the second is the state, and the third is production, representing the ethical, social, and economic phases of life. These are three sufficient ends to be served if it may be shown that health is an active element in both the maintenance and advancement of the interests of each of the three contracting parties.

The Individual

The individual has reason to be willing to spend his personal funds directly or indirectly (through taxation) in order to learn the laws that govern the successful operation of his physical machine, because it gives one entrée to companionship at a higher level; because it en-

ables one to enjoy personal comfort; because it contributes to one's self-esteem; because it enables one to accomplish in a larger measure, because it is a guarantee for the greater worth of one's off-spring, beyond which there can be no greater desire; and because it will yield the state, that makes life and work possible, a fitting return

The State

The state is concerned on two grounds, at least. The state is concerned to have each individual capable of self-support, for every individual who fails in self-maintenance becomes a charge against other members in the degree of his failure. Such charges are reflected in all agencies set up to preserve social welfare, including courts, hospitals, and infirmaries. These agencies reflect direct loss. Failure in maximum performance, however, is far greater, no doubt, although quite difficult to measure. The state may well be informed even at great cost as to the relative efficiency of prevention versus correction or maintenance of such disabilities. It seems that the state may well enter upon a program of health education by giving both moral and financial support. A state department of education might well assign the problem of health education for preparation, and possibly for promotion, to the state universities in the respective states.

Production

Production is understood to include all branches of service, industrial, commercial, and professional. An interesting chapter appears in the report submitted by the Secretary of Commerce, Herbert Hoover, in 1921, on "Waste in Industry." May I quote from this chapter.

This report first cites the report on national vitality prepared at the instance of President Roosevelt in 1909 to this effect: three million persons are seriously ill at all times in the United States, meaning a loss of an average of 13 days each year per working person. It was estimated that 42 per cent of such illness was preventable. Since that time the average number of days of illness has been reduced to eight.

Mr. Hoover's own report states that 350,000,000 days are annually lost because of illness. Of the 500,000 workers who die each year, possibly one-half of such deaths are postponable. In summary, the

unnecessary illness amounts to a billion dollars each year. These figures are based upon research extending to insurance, census, and army draft records.

It would seem that the industrial interests might well support the state and all branches of education in the promotion of a program for health education on a purely economic basis.

The foregoing is submitted to indicate that, administratively speaking, there are sufficient reasons to warrant the educational forces in spending time and talent in preparing a tentative program of health education with primary emphasis upon preventive measures and secondary stress on corrective treatment.

May I reaffirm my belief that our state department of education, or whatever government agencies are concerned or empowered to act, might well make requisition upon our best universities to provide programs for health education. The field of public education and, no doubt, private educational institutions, will extend the best laboratory facilities and should aid liberally in financing the cost of experimentation. The reason for citing the universities as agencies for preparation of the program is that much time and money will be saved through elimination of amateur experiments in local districts. Furthermore, the universities' recommendations to the legislature will carry greater weight. On the other hand, the large cities will develop programs and the work will spread to surrounding localities. Such progress will be slow and less well-planned.

I am pleased to acknowledge assistance from Professor C. E. Turner of The Massachusetts Institute of Technology, who was engaged for a year in the reconstruction and expansion of the health program for the Cleveland Public Schools. I shall quote freely from the material which he has developed and employed.

PRINCIPLES OF EDUCATIONAL PROCEDURE

Health Education is not an isolated subject to be taught by itself. Health motives and practices should be woven into every part of the school life and work. It must be remembered that doing rather than knowing is the final goal of health education. The emphasis is placed on establishing wholesome interests and attitudes which will contribute

towards balance, efficiency, and sane living. The children are stimulated to think about the satisfactions of healthy living rather than about the dangers of disease.

The child's interest in his own growth is the most valuable single motivating factor. A clear distinction is recognized between the educational and clinical uses of weighing and measuring children.

To maintain health practices at the higher grade levels is as important and sometimes more difficult than to initiate those habits at lower grade levels. It is necessary to develop health practices on the part of the child before he is old enough to understand the scientific reasons upon which those practices rest.

Making the child want health goes farther than insisting that the child have health.

Teaching of communicable disease truths as related to the spread and control of diseases is better than frightening the child with the gruesome facts of the disease.

The child should learn practices which relate to home and community hygiene.

BASIC PREMISES FOR A HEALTH PROGRAM

With due recognition to hereditary differences, it is obvious that one's mode of life is largely responsible for health and vitality.

Health instruction cannot be left to incidental treatment. It requires systematic training supported by practice to develop habits and accumulate knowledge which will be reflected in physical and mental health.

The successful execution of the health program will require the warm support of the entire administrative and supervisory staff. The classroom teacher is the keystone in the arch, and the arch will fall if she does not enjoy the support of the health specialists, including doctors, nurses, dentists, economics teachers and physical instructors.

The corrective health program presupposes the execution of all practical measures for promoting and maintaining the health of the whole school population.

Health training should contribute to the easier accomplishment of medical service and, in return, remedial service will contribute to health education.

The program of health instruction training and practice in the teachers' college will be a major factor in determining the success of health instruction in the future. The promotion of a teacher's health is important to the health program as well as to the quality and cost of education.

OBJECTIVES FOR THE HEALTH PROGRAM

1. To correct physical defects
2. To reduce communicable diseases
3. To coordinate health and physical education
4. To improve classroom conditions
5. To interest parents in health program
6. To establish and maintain specific health habits
7. To acquire knowledge of health
8. To develop a belief in health for health's sake, as a means for enriching life and producing both physical and mental vigor.

The child's attitude toward life will largely determine his mental health and social behavior. The reverse is equally true. Mental health for normal children involves the development of a well-balanced mind capable of applying itself readily to the mastery of affairs with a freedom from mental strain. The school seeks the following:

1. To train children to rest
2. To give every child an opportunity to achieve success
3. To encourage self-expression
4. To develop concentration of attention, initiative, and appreciation of social relationships and environment

GENERAL PLAN OF HEALTH EDUCATION

Kindergarten

Produce correct habits of living without holding the children responsible for health information

Grades 1, 2, and 3

Habit formation Motivation to stimulate the formation of positive habits and attitudes.

Grades 4, 5, and 6

Motivation program continues with the addition of information to show the "why" of health habits. The explanation is chiefly by

way of analogy and illustration. Present elementary facts of physiology but no scientific details of structure and function

Grades 7, 8, and 9

Continue primary emphasis on development of health habits and attitudes, utilizing, as much as possible, class organization of children and placing upon them the responsibility for the habit program. In these grades instruction becomes more definite in the following subjects: Nature and Prevention of Disease; Community Health Practices; Physiology.

Grades 10, 11, and 12

It does not seem practicable to continue instruction in Hygiene all through the senior high school and much of the work must be done by correlation. In some high schools a very satisfactory required course in hygiene has been given to freshmen. This has been a course of one period a week for the school year. In some high schools an orientation course was given to girls which seemed to be of the highest value. In one school this course is elective, and more girls desire to take it than can be accommodated. Without being so labeled, an appreciable amount of valuable sex education is carried out in this course. The work is being given by a nurse at the present time. A nurse is a good person to develop such a course if she has proper educational background. It would be desirable to develop a similar course, perhaps calling it an orientation course, for senior high school boys. Through such courses for both girls and boys, it is believed that the public high school can contribute something to its pupils in the field of conduct which the best private schools have been giving for a long time, but which the public schools have not yet offered.

The principle of setting some standard of physical accomplishment, which is met before the pupil is permitted to graduate, is one which is receiving much consideration. At first it seemed unreasonable to educators who had been thinking of the schools as dealing only with the mind.

Another important principle which is being rapidly developed is the practice of giving the student some grade for health and physical accomplishment. It is well to consider a point system of credits, including the correction of physical defects and the physical accomplish-

ments of the pupil in order that both pupil and parents may see where the child stands in these respects.

ACTIVITIES COMMON TO THE JUNIOR AND SENIOR HIGH SCHOOLS

Certain procedures in the senior high school are similar to those in the junior high school, and the suggestions offered in the tentative junior high school plan would be applicable with suitable modifications:

- 1 Employment of health counselors
- 2 Faculty committees
- 3 Participation of student councils
- 4 Correlation of health with other subjects
- 5 A weighing and measuring program
- 6 Cooperation of school lunchrooms
- 7 Special attention to underweight and otherwise below-par pupils
- 8 Competitions for physical perfection
- 9 Cooperation with outside health agencies

WAYS AND MEANS FOR PRODUCING A COURSE IN HEALTH

Development of Laboratory Centers

A laboratory center first requires a principal who is possessed of a genuine interest in experimentation. In turn, the principal will select one or more lieutenants who will share her interest.

The treatment of the subject may be developed within this group or the group may proceed to carry out the directions of a prepared tentative course proposed by a specialist. The second procedure is by all means the best in that it escapes amateurish practice and waste of time for all concerned. The results of the experiment may be incorporated in pamphlet form for distribution to other centers to be organized. The plan works slowly unless a skilled coordinator is in charge to push the work into other schools. The reason is obvious. All principals are not equally inspired to experiment and progress.

Construction of the Course

The plan for a course in health instruction which has been sketched here was reconstructed and expanded from the material already developed within centers in the Cleveland system. The work in progress

varied from a state of high cultivation in certain centers to indifferent and spiritless performance in other centers.

Doctor Turner was made director of the reorganization work and I am sure deserves credit not only for giving order and substance to the new work, but also for teaching us a sound lesson in that committee work under the direction of a specialist is much better done than under the direction of an executive. Committee-constructed courses may be quite loose, indeed, unless there is a competent central directing mind. I may add that we are placing in charge of the operation an expert who promises much enthusiasm and understanding as well.

The detailed programs for the elementary school (grades 1-6), and for the junior high school (grades 7, 8, and 9) are now published. The program for the senior high school remains to be developed. It will be seen that, while the paper plans are herewith set forth, there remains to be set in motion the urge, the enthusiasm to lead the whole educational staff to action.

As to colleges and universities, from such studies as I have found time to examine, the conclusions drawn reflect the opinion that colleges and universities have failed to draw upon the wealth of material in their departments of science for instructional matter which would apply in health education. These institutions may well serve the general public in sending out their leaders equipped in health information and practice on the one hand and, furthermore, in directing the preparation of material for the lower levels of public education.

CORRELATIONS IN HEALTH ADMINISTRATION AND HEALTH TEACHING

WILLIAM DEKLEINE, M.D.

Director, Medical Service, American Red Cross, Washington

THE administration of health activities in the schools is variously sponsored by boards of education, health departments and voluntary health agencies. In some communities the schools conduct the entire health program; in others, health departments or private

agencies sponsor the work or participate in it one way or another. There is apparently no uniform standard of practice in this regard and no evidence of any trend to indicate what future practice will be. There still seems to be considerable confusion of thought and difference of opinion on this question.

Whatever the individual opinion or practice may be, it seems quite evident that these agencies will all continue active in some phase of school health work. Health departments have certain duties imposed upon them by law for the control of communicable diseases and matters of sanitation. School authorities have certain legal responsibilities and educational objectives in the training of school children. Voluntary agencies have certain obligations in developing new phases of personal and community health not sponsored by the official agencies. It is therefore not likely that any of them will voluntarily withdraw from this field; and it is well that they do not.

The school health program must depend, for some time to come, on all of these groups, rather than on any one of them. No single agency, not even the school, although it occupies the most strategic position, can carry this load alone without some assistance. Our only hope apparently for a more uniform standard of practice in school health supervision and for attaining the ideal of one health program in the school and community seems to be through a careful coordination of the participating agencies. This calls for leadership in bringing these groups together; in formulating working agreements and in preparing interrelating procedures. That is one of the vital needs in public health administration in the schools and in the community.

There are at least five major objectives in the school health program:

- 1 Sanitary supervision of buildings and grounds
2. Control of the communicable diseases
3. Health examination and follow-up for correction of defects
- 4 Health education
- 5 Physical education and health promotion through playground activities, serving school lunches, and so forth.

These are recognized as more or less standard objectives or divisions of the school health program. An analysis of each division

activity from an administrative point of view may help to indicate where and what correlations and interrelating procedures are necessary.

Sanitary Supervision of School Buildings and Grounds

A healthful environment is a prime requisite for school children. Adequate sanitary facilities, lighting, heating, ventilation and safety devices are absolute necessities. These problems relate to the construction and regulation of school buildings and grounds which is a primary responsibility of boards of education and school authorities. Neither boards of health nor other agencies can assume this duty or participate in it except in an advisory capacity. State laws and local regulations, with very few exceptions, place this responsibility—and rightly so—upon the school authorities. No correlations are therefore indicated for this phase of school health supervision.

Control of the Communicable Diseases

The control of the communicable diseases is one of the important legal responsibilities of health departments, and it concerns children in the schools, as well as the public generally. Health departments cannot, however, direct this work successfully in the schools without the assistance of the teachers and school authorities. The measures adopted must therefore be carefully correlated with the school program.

There are two important measures, applicable to schools, for the control of communicable diseases; namely, prompt identification and isolation of patients and the immunization of susceptible individuals against certain diseases (diphtheria and smallpox). The successful administration of these activities in the schools calls for certain working agreements and interrelating procedures between the health department and the schools.

Prompt identification and isolation of patients cannot be carried out with any degree of success in the schools without daily inspection of school children by the classroom teacher. Teachers must therefore have some knowledge of the nature and symptoms of the common communicable diseases. Without attempting to teach them how to diagnose, they should at least be instructed how to recognize or

suspect illness among their pupils and what the procedures are for reporting to the health department.

When the diagnosis has been determined by a physician or a representative of the health department, and the patient isolated or placed in quarantine, the health officer should report back to the schools as to the diagnosis and disposition of the case. Definite instructions should then be given in regard to any procedure that the health department may require in the schools.

Where the immunization of susceptible children in the schools is sponsored either by the health department or other agency, certain educational and routine procedures are necessary. These may be briefly summarized as follows:

The education of parents and children through talks, pictures, literature, and so forth. This calls for educational conferences for parents and children in which representatives of the health department, the school physician, school nurse and teacher participate. Teachers can be especially helpful by encouraging children.

The written approval of parents. This calls for the preparation and distribution of printed notices and blanks for their signatures

Immunization clinics must be planned and organized. The teachers, as well as the physicians and nurses, should have a definite part in the clinic program. Record keeping and filing by the nurse, teacher or volunteer must be planned. The duties of each should be clearly defined.

Follow-up by the school or health department nurses may be necessary.

Health Examinations and Follow-up for Correction of Defects

Health examination of children in the schools is not, with possibly few exceptions, a legal duty of the schools nor health department. That responsibility still rests more or less indifferently with parents. It may, however, be sponsored by any one or all of the agencies that commonly participate in school health work. No agency is in a position at the present time to arbitrarily assume that this function can be conducted successfully only by that agency. It should be recognized, however, that this work must be conducted within the domain

of the schools. The latter should therefore always have first consideration in matters of principles and policies.

It is of prime importance that health agencies which operate in the schools should observe rigidly all the educational requirements insofar as they relate to conduct in the schools and the handling of children. This needs special emphasis because physicians, dentists and others not familiar with school standards frequently violate the fundamental principles of psychology and education in dealing with school children.

Health examinations should serve a broader purpose than the detection and correction of defects. They may be used as projects in health education, or may serve as a means for influencing children favorably in their attitude toward this project. Individuals who conduct these examinations invariably leave certain impressions, favorable or otherwise, with the children. Impressions gained in this manner may, in the end, serve a better purpose than the actual results of the examination. They may possibly determine their whole future attitude toward periodic health examinations. It may be that therein lies the eventual solution of the problem of teaching the public to avoid the cults and quacks.

Physicians, dentists, nurses, dental hygienists and others participating in school health examinations should first of all be required to study or receive instruction in certain principles of education and psychology. It seems infinitely more important that representatives of the health department, school physicians and others, are trained or instructed in these principles than it is for teachers to receive instruction in communicable diseases. Carefully prepared procedures covering this phase of school health work is of prime importance.

The interrelating procedures previously outlined for the control of communicable diseases, modified and adapted to health examinations, are also applicable to this phase of school health work. We refer to procedures for the education of parents and children in the value of health examinations; obtaining their approval; the organization of health examination clinics and follow-up work.

Health Education

Health education is primarily the function of the schools. However, where schools do not assume this duty it frequently falls upon other agencies to sponsor it. Much of the present day progress in health education is the result of the impetus given to it by health departments and voluntary agencies. Rural and parochial schools would, in most instances, have no health instruction were it not for these organizations. They constitute a very important part of the present health education structure in the schools and community. It seems logical, however, that eventually this responsibility should be delegated to the schools.

Health education in the schools should not be thought of in this connection, only as a formal course of instruction, but rather as a complex of health information and impressions that children acquire through instruction, through experience and casual observation.

A health personnel who fail to impress children favorably in the performance of their school duties or who obviously do not practice the simple health habits they expect children to observe; the schools that give formal instruction in cleanliness and sanitation and at the same time present object lessons in the nature of dirty toilets, lavatories and buildings, poorly ventilated rooms, etc., are merely teaching theories that will seem more or less impractical to the children. The impressions gained in this manner may go a long way to determine their attitude toward public health and the observance of health habits.

A successful health education program for children cannot be limited to the schools. It must include the home. Unless children have an opportunity to apply and practice what they learn in the schools, the real value of the instruction and training will be lost. That is one of the crucial tests. Parents must understand the objectives of health education so they can intelligently assist the schools in the application of health knowledge and health practices.

The schools should not be expected to carry the entire load of parental education, particularly instruction in health. They need the support and assistance of every agency in the community that can intelligently contribute to this cause. Health departments, voluntary health agencies, physicians, dentists and others capable of giving this service should participate in this important school function.

Physical Education and Health Promotion

This phase of school health supervision is also a primary function of boards of education and school authorities. The principles outlined in the health education division also apply here. Agencies not strictly public health organizations frequently render valuable assistance to the schools in various health promotion activities. However, since they are not strictly public health functions, a discussion of this division will be omitted.

A school health program in which more than one agency participates, involving a personnel of varied training, qualifications and attitudes depends for its ultimate success upon certain administrative policies and procedures; namely, a thorough-going correlation and integration of each agency into the school health program; a clear definition of the functions and duties of each group and careful instruction of the personnel.

The health program in the schools and community should be approached from this broad viewpoint. Unless all the agencies are brought together into a well coordinated unit and their activities carefully correlated; unless policies and working agreements are formulated, functions and duties clearly defined and interrelating procedures prepared, the health program will fail in its major objectives. These are matters of administration and are of prime importance in every joint health program. Many of the common health problems would disappear if the administrative questions were adjusted first. If the problem was approached from this point of view perhaps we could then have one health program in the schools and in the community.

This could probably be worked out best, particularly in the larger communities, through the formation of a correlating unit or health council composed of representatives of all the health agencies. This council should not be an administrative or directing body. That would result in trouble. It should be a correlating unit without administrative control or directing authority. It should confine its efforts to formulating policies, outlining functions and duties, formulating working agreements, preparing interrelating routine procedures and perhaps instructing the personnel. Leadership for such a project might well come from the schools, the health department or any voluntary agency.

PRINCIPLES OF SOCIAL RESEARCH

Introductory Remarks by the Chairman, THOMAS D. WOOD, M.D.

*Professor of Health Education, Teachers College, Columbia University
New York City*

Rapidly increasing evidence attests the incalculable value of scientific research with the accumulation of objective data, and impartial conclusions and interpretations from such data.

Such research is important in all fields of human interest, and it is particularly needed in the field of health.

The history of statistics and the statistical method, presented in a recent doctor's dissertation, shows how rapid has been the development and refinement of this invaluable instrument of research, particularly in the realm of human and social phenomena.

We shall be much interested and benefited in learning from the first address, this morning, how greatly education in some fields has profited and been advanced by the use of modern research methods.

Many have been waiting with eager hopefulness for the application of scientifically constructed measurements and tests to the field of health; and for the statistical treatment and judicial interpretation of the results of these tests to help us determine as far as possible the relative value of the many and varied procedures in this field.

The second address of the morning will indicate, or at least suggest, the possibilities in more dependable results and judgments than we have yet had, from the use of these new research tools and methods in the field of health.

KEEPING PACE WITH THE RESULTS OF EXPERIMENTAL RESEARCH IN THE SOCIAL SCIENCES

DOROTHY BIRD NYSWANDER, PH D

Professor of Psychology, University of Utah, Salt Lake City

THE social sciences are so new that few people know anything about them. Indeed, many eminent people deny that they exist or ever can exist because of the kind of data with which they are concerned. Fortunately, however, for the scientific aspirations of the research

people in the social sciences a science is defined not by the data *per se*, but by the methods of collecting and treating the data. Confident of these methods research men have done a vast amount of experimental work, the results of which have been far reaching in every direction. For the following discussion the experiments for the most part have been chosen from the broad fields of education and educational psychology, since in these fields has been best exemplified not only the new methods of research in the social sciences, but also the radical changes in theory and practice which research has made necessary.

The outstanding characteristic of the new research methods is, undoubtedly, their statistical aspect. Statistics have become an integral part of the technique. No claims for the uniqueness of the method can, however, be made by the modern biometricians for the basic principles therein involved have long been used by astronomers, physicists, and engineers in evaluating their measurements. The Theory of Least Squares offers to them, as to the statistician, a mathematical concept for interpreting their measures. It is to Karl Pearson of England, however, that the biometrician owes the development of those particular techniques which are especially suited to the description of the functions which he meets. Professors Cattell and Thorndike made these techniques available to the psychologist and the sociologist; Professor Raymond Pearl has been largely responsible in this country for their introduction into the field of vital statistics and biometry proper.

To many laymen and to those whose professional education was completed before the introduction of this new research technique the very term *statistics* carries with it negative connotations: to some, it means the mathematics associated with adolescent fears and failures and lack of meanings in algebra and geometry; while to others, it means an artificial treatment of data by which the one versed in them can prove anything he wishes. Neither meaning should obtain. Statistical technique is relatively simple to learn. It is a tool-subject—an application of mathematics, not a theoretical form. In many universities it is now a required course in education and psychology; few students experience difficulty with it. One course in technique and one in interpretation enable the average student to read the re-

search material with understanding. Its difficult phase is comparable to that of histological technique: it is that of interpretation. But here, as in histology, the artifacts of statistical work are just as evident to the statistician aware of the assumptions and mathematical laws underlying his work as are the artifacts of histological technique to the histologist equally aware of the demand of a knowledge of biochemistry necessary for the explanation of their appearance.

Although as is evident from the above statements, the training demanded for an understanding of statistical methods is very simple, yet many a would-be experimenter lacks it. An example of the failure to interpret rightly his findings is found in some of the work which called for the partial correlation technique. As a result of ignorance, then, the major part of his calculations was futile and his interpretations were wild mis-statements. When these errors in interpretation were pointed out, the statistically-interested but not informed person became nervous. He, thereupon, decided that the partial correlation technique was wrong. He was afraid of it. As a matter of fact, there is nothing wrong with the technique. It is one of the most powerful experimental techniques that has yet been devised. A comparable event in applied and theoretical mathematics was the discovery of the methods of differential and integral calculus whereby infinitesimally small measures could so be treated as to yield finite results. The mathematical validity of the two processes, their preciseness, the achievement in one swift process of results which would otherwise require hours of experimental labor, are as astounding for the partial and multiple correlation techniques as for the calculus.

When experimental methods were introduced which the use of statistical technique made possible, problems were attacked hitherto defying solution. In education it was now possible to use tests to measure the capacity to learn. These tests had been constructed so as to meet certain criteria expressed in statistical terms, *i.e.*, reliability and validity correlation coefficients of given magnitude. Having such tests the experimenter could determine with a high degree of accuracy the degree to which children use their ability in the learning of the school subjects. Now, too, problems involving the use of age, grade, and other scores which were impossible to solve

under ordinary experimental methods because of their complexity, could be successfully handled by means of the partial correlation technique. In sociology the inter-relationships of the factors contributing to delinquency became ascertainable; in eugenics the degree to which heritable factors are shared by offspring and by parents and offspring gave new insight into the problems of heredity; in psychology the new technique offered an attack on the very nature of the mind itself. In fact, the most comprehensive discussion of the nature of intelligence at the present time as given by Spearman of England, and Kelley of Stanford University is wholly in mathematical terms.

What has been the effect of this experimental work upon the theory and practice in the several fields? We are already far enough away from the early work to see the drastic changes following in its wake. Old theories have been discarded and practices have been revolutionized with astounding rapidity. This modification of practice becomes the more remarkable when one considers the administrative machinery through which such changes must necessarily be transmitted.

As stated previously, good specific examples of what has taken place are found in the fields of applied and theoretical psychology. Especially stimulating to the research worker in educational psychology are the modifications of theory and practice which have followed the experimental work in elementary education.

About twenty-five years ago the phonic method of teaching reading was introduced into the school system with little or no experimental evidence to justify its existence. The old a, b, c method together with the hickory stick was put into the waste-paper basket and a generation of young Americans started lustily in chorus to c-at, r-at, m-at, s-at its way to higher culture. The children with this new sounding out of words were undoubtedly learning to read far faster than they had before. The psychologist, nevertheless, regarded these proceedings a trifle aghast. He had many reasons for so doing. A basic theory of learning upon which much experimental evidence had been obtained assured him that voco-motor habits practiced as vigorously and as continuously as were the phonic soundings of words must carry over into later reading habits and thereby slow down the reading process. Lip-readers and throat-readers must result. What

a misfortune for the older student desiring to skim through a book in an evening! His efforts to read rapidly would be inhibited by the early habits which compelled him to analyze each word laboriously through the medium of the vocal musculature.

The psychologist had additional data from the researches of Cattell and the students of Judd to the effect that there is a very direct relationship between the speed of eye-movement and the size of the unit of material which is read. In general, the smaller the unit, the slower the children read, and conversely; *i e.*, words are read much more quickly than isolated letters, syllables, or numbers.

Only carefully performed experiments could show the true rating of the phonic method as contrasted with the "word-phrase" method, a method which, psychologically speaking, was more acceptable. Such experiments were made and checked. Careful statistical evaluation of the results showed conclusively that for both comprehension and speed the phonic method was inferior to the word-phrase method of teaching reading and should, therefore, be introduced as a supplementary tool only after the word-phrase reading habits have been firmly fixed. For very superior pupils it appeared that the use of phonics could be dispensed with completely.

Now what were the results of these findings upon educational practice? The administrative difficulties attached to seeing that the teaching of phonics was modified were many. First, the books embodying the phonic methods were in the hands of the teachers and in some localities were even state-adoptions. New books would need not only to be constructed but also to go through the struggle of supplanting those in use. In the second place, thousands of elementary school teachers had been prepared to teach reading by the phonic method only and, consequently, they knew no other way of teaching it. A third difficulty was that these teachers could not be reached directly except through the teaching of the supervisors and the educational research journals. But how many supervisors knew of the experimental results or were able to read the research journals? Few of them were able to qualify. For this reason educational leaders saw that the teaching of statistical technique and research method in the colleges to every prospective teacher was the only means they could

employ to insure that the teachers of the future could read the journals and the monographs in their field and modify their methods accordingly.

The younger teachers recently trained and the older ones who keep up their professional study are using the results of this research in phonics. It is an objective measure of the professional rating of the primary teacher, the principal, or the superintendent, who, ignorant of the research work, teaches reading or permits the teaching of reading solely by the older method.

Because of the importance of reading, the experimental work in that subject has been extensive. One other experiment yielding results which have modified the theory connected with teaching reading follows. It had long been held that the slow reader was the reader who comprehended best what he had read. It was a logical supposition; moreover, it had in it the germs of the belief in the prevalence of a compensatory law. This law of compensation would keep us all happy by having us believe that what we lack in one ability we make up for in other abilities, *i.e.*, while no person has, on the one hand, all the enviable attributes, he has, on the other, a just distribution of desirable qualities.

It was rather a simple task to test the validity of this assumption with respect to reading-comprehension and speed of reading. Under experimentally controlled conditions children of varying degrees of intelligence were given reading tests. Scores were obtained for speed or rate of reading and for the number of items remembered in the material read, *i.e.*, comprehension scores. The correlation technique was employed to determine the degree to which high scores in speed were associated with low scores in comprehension. If a compensatory law were at work, it would be shown through a negative correlation coefficient. But no negative correlations were found; only positive relationships appeared. This meant that there is a tendency for the fast readers to remember the most material. To make this state of affairs still more unfair it would appear from the correlations between these two factors and the factor of intelligence that there is a strong tendency for the children who read the fastest and comprehend the most to be also the brightest! So much for the law of compensation

As a consequence of these experiments special methods for the teaching of reading to bright children and dull children have been devised as well as new objectives in reading for both groups. Only those educators with their heads in the sand have failed to make these adjustments to the experimental work.

The subject of learning is most important to the psychologist. Here hundreds of problems crying for experimental investigation strike him at every turn: How do we learn, why do we learn, what do we learn, these questions seem simple enough to answer. What is the most economical method of learning different types of material; what effects have age, sex, and intelligence on learning; shall we use rewards or punishments in learning and what causes the learning curve to take the shape it does? Does learning cause mental fatigue? Can training in one school subject facilitate the learning of all school subjects by strengthening the mind? And so on.

From this array of questions the answers which the experimental evidence affords to four follow: First, how shall we study different types of material? Shall we learn a thing, part by part, sectionally, or shall we learn it as a whole. For example, a few years ago the method used almost entirely in memorizing poetry was the sectional method, learning it verse by verse. Music has been memorized in a similar fashion. Is this method the most effective? Shall we use it in teaching swimming and reading or should the method of learning vary with the skill to be learned or the subject matter to be studied? In brief, in memorizing poetry, experiments on the whole and part methods of learning point to the superiority of a combination of the whole and part methods. In learning material of a serial-motor nature—analogueous to learning to write or to hit a golf ball—the part method is, generally speaking, better; that is, it is advisable to break the activity up into its elements and learn part at a time. In learning to type and in learning music the part method again appears superior. But in learning to read the whole method of learning big units, as has been stated before, is vastly superior to breaking up the material into alphabetic or even phonic units.

Second, what are the hazards of mental fatigue? The danger of "straining the mind" is now no longer a moot question since Miss

Arai multiplied mentally four place numbers by four place numbers for eleven hours continuously and at the end of that time was still multiplying, though a trifle more slowly. And various others have repeated the work with comparable results. Mental fatigue under normal conditions seems an impossibility to achieve. Physical fatigue is what we are aware of; and, consequently, the recognition that this form of fatigue rather than the other prevails has altered class-room procedure to no small degree, and it now forms a vital part of personal mental hygiene. If the causes of the physical fatigue can be removed, the mental work in the same or a different field can go on unabated. Furthermore, mental fatigue *per se* has been found to exist in such negligible quantities in the different hours of the school day that if the child is not physically unfit for work and if he is properly motivated, one hour of the school day is as propitious as any other for the learning of the most difficult school subject.

Third, what is the relation of age to learning? Until recently the theory held that the time to learn was youth. Actual practice expressed a much stronger bias. It actually discouraged learning after a certain age. This theory went for years unquestioned. It was a corollary of "getting old." Thorndike's findings that adults can in most instances learn just as well as adolescent boys and girls and in some subjects can surpass them has brought new incentive to thousands of ambitious persons who are quite willing to forget that they are forty. Thorndike shows that the only limitations placed on the learning of an adult are those imposed on him in his youth, namely, his native ability and his acquired interests. These results so recently released are already forming the basis for increased activity in the work of adult education. That they will in time have profound effects upon the mental attitudes of the adult population can not be doubted. Whenever industry and state recognize the portent of the above experimental results they will provide schooling for adult employees and citizens, such as has not yet been dreamed of.

The last problem in learning for which experimental work is presented below is the now classical problem of transfer of training. No problem in educational psychology has provoked more controversy or has furnished more incentive to research. By transfer of training

is usually meant either that the training of the mind in a given set of habits will affect the strengthening of the mind as a whole or that training the mind in one ability will make it easier for the individual to acquire other abilities. For instance, mathematics, if properly studied, may from the first point of view so strengthen the mind that the individual reasons better, has a better memory, concentrates better, is more successful in every way than if he had not taken mathematics. His mind is assumed to have been strengthened as a whole. From the other point of view the transfer of training to be expected from the study of mathematics is simply a transferred ability to do better work in some other school subject, such as history or French. When we think in analogous terms of the effect that taking exercise in one set of muscles has upon the rest of the body it seems a very plausible theory; *i e.*, there seems to be a general toning up of the entire physical system. Again, when a certain set of muscles is trained, there are measurable effects of the training in increased size or in hardness of the muscles or in the accuracy and skill developed by the muscles. Why, we may ask, is it not possible to practice memory feats every day for a period of time and increase our ability to memorize any kind of material? We may go further and ask if it does not seem reasonable that if we have strengthened our memory by ardent practice, why is it not possible that as by-products we have also strengthened our powers of concentration and discrimination?

The experimental results which give us the answers to these questions are unequivocal. First of all, the old theory of the mind being made up of a number of important faculties, or powers, has been shattered. Not even its classical descent from Aristotle saved it. The experiments showed that there exist no powers of memory, concentration, reasoning, or discrimination. The psychological experiments allow no two ways of interpreting the data. Memory, for example, is made up of hundreds of specific habits of recall with hundreds of different types of materials. The habits involved in this process and the others named are specific habits, and when an individual practices memorizing certain kinds of material, he grows proficient in memorizing that material alone. The only beneficial results to be found toward the memorizing of other types of material are an aptitude

for material having much in common with that practiced To illustrate, Sleight found that groups who spent considerable time in memorizing tables of population and import and export tables were better in memorizing dates than the groups which had not had this practice. But this very same group was found to do worse in memorizing prose material after such practice than the control groups which had not practiced memorizing the tables. In the first case the materials were much alike and the methods used in remembering were similar. In the second case the materials were unlike and the methods for learning them were unlike. Inhibition rather than facilitation was the result, although memory, as a process, was demanded in each situation

The theory of "training the mind" exploded, let us turn to the experimental results which throw light on the question as to the degree to which training in one subject helps in the learning of similar subjects. Since the results are so crucial for the making of the school curriculum and for methods of teaching, let us choose data from the educational field, though it can be obtained equally well from others. The claims for the teaching of Latin are well known to all of us. Very real values in the betterment of our English vocabulary, our skill in composition work, and our facility in learning other languages are promised us. We will not consider here the more subtle values, such as training in logic, training in reasoning, training in concentration, training in appreciation, which were supposed to be an intrinsic part of the learning process. Perhaps the experimental work that has just been presented on the specificity of the memory-process points to the answer as to the degree to which transfer values may be expected here.

Studies made by a half dozen people show the following facts: First, that better papers in English composition are received from those students who have had training in Latin. Furthermore, the more Latin they have studied, the better are their papers. Second, that these outcomes are wholly the result of the mental superiority of the group studying Latin! Wilcox in a checking experiment showed that the Latin group wrote compositions superior to the non-Latin group before they had ever studied a word of Latin. In experiments involving the effect of studying Latin upon the size of vocabulary and the mean-

ings of words it was found, however, that the Latin students gained in a year about two and a half times as many words of Latin derivation as the non-Latin students. In the words of our vocabulary which were not of Latin derivation there was no significant difference between the groups. The effect of the previous study of Latin upon grades in beginning French has been shown to be positive, but so small that by the time the second semester's work has begun the small advantage is lost.

The effect of this work in the transfer of training upon theory and practice in educational administration and educational methods has been tremendous. Take, for instance, this discovery that if Latin is to be studied by an individual, it must be studied for the uses to which a knowledge of Latin itself can be put and not for the intrinsic contribution which it will make to his use of oral or written English or to the development of his mind. In spite of the precedent of several hundred years and in the face of the criticism of living scholars who believe they owe their success in large part to their training in Latin, the public school systems have changed the place of Latin from that of a required subject to that of an elective. The emphasis on other subjects has been modified and is still being radically adjusted to meet the present criterion, namely, that a subject must be of value in itself to justify its inclusion in the curriculum. The discovery of the specificity of the learning process has made educators alive to the fact that no subject offers a royal road to the learning either of content or methods. In the field of methods teachers are being taught as the result of some experiments on ideals and generalized habits that if they wish to insure any transfer of methods of procedure from one subject to another, they must teach these methods of procedure to students as they would teach subject matter; and then, too, they must give the students a vast amount of practice in the transferring of the methods. Thus, outlining in history, analysis of data in biology, logical presentation of facts in English composition, inductive and deductive procedure in mathematics, even though thoroughly learned in connection with the respective subjects, these procedures cannot be assumed to carry over into other subjects. They must be taught in many subjects in order to become useful tools. In the light of

these studies courses of study and methods of teaching take on new meanings and purposes.

The last array of experimental evidences to be presented is from the work which has been done relative to the differences existing between individuals. The very fact of the existence of individual differences is comparatively new. The exact opposite, indeed, is found latent in the basic assumptions of our political and religious institutions. Professor McKeen Cattell is responsible for the discovery of the universality of this phenomenon in human behavior and the expression of it in mathematical terms. It is true that Plato observed the differences in the ability of men to learn and then classified them into three non-overlapping groups. Cattell and his students found through refined quantitative measurements that no such modality exists even in the limited functions considered by Plato, but that the distributions are continuous with few or no gaps between successive measurement of the trait. Human beings are not types, they are an admixture of a thousand different placements in delicately graded scales which ascend from zero of the ability to the greatest amount possible for the human organism.

Only a few years ago Rice, following Cattell's methods, brought to the educational world the knowledge of the vast differences existing between children of the same age and of the same grade in doing their school work. The first announcement of his findings met with doubt and aroused consternation. Subsequent work, however, not only confirmed his results but also supplemented them with data from seemingly every possible field.

In an instant the child was no longer regarded as a member of a homogeneous group. He was an individual differing in a hundred different measurable factors from the other children sitting around him in the classroom. His motor-coordinations became a matter of import. Perhaps in his faulty coordinations lay the germ of this one's difficulty in his first-grade work or formed the basis for the social maladjustment of that seventh grader. Lengths of eye span, acuity of hearing, reaction time to different stimuli, ability to remember numbers, ability to remember sentences, ability to follow directions and to avoid distractions, ability to wait for deferred rewards instead of tak-

ing immediate ones, ability to learn spelling, arithmetic, and the rest of the school subjects, ability to differentiate musical tones and rhythms—all of these and a vast number of other functions were found to exist in varying degrees in every individual. The sociological technician and the psychological clinician had their origin in the results of this experimental work, for now for the first time they were able to make an attempt to identify those causal factors responsible for the diversity of behavior-patterns they observed.

One of the most interesting phenomena among these behavior-patterns is that known as the "possession of a special ability." Both observation and tests showed the presence of many individuals who excelled in some one school subject or skill. From these observations the theory of special abilities was derived and has been accepted not only by the layman but also by many eugenicists, sociologists, and psychologists. This theory states that the human mind is so constituted that any one mind, because of some neurological potency in a certain subject, may excel in that subject; and yet in other functions it may have but little ability. How true are these claims that one child has a special ability in arithmetic, another child a special disability in language, and so forth? A crucial experiment by Franzen showed the degree to which this special-ability-theory was true. Two hundred children were given tests in all of the elementary school subjects for which reliable tests were available. In addition, they were given an intelligence test which measured indirectly their innate ability to learn these school subjects. Positive correlations resulted both when the scores of the school tests were intercorrelated and when they were correlated with the scores on the so-called intelligence test.

These positive correlations meant, of course, that the children who made the high scores in arithmetic were also the children who made the high scores in reading, spelling, and language. Conversely, the children who made low scores in one subject tended to make low scores in all of the others. But most important of all it was shown that the amount of association between any two school subjects was dependent to a large degree upon the relationship between each of these subjects and intelligence. The only special ability possessed by a child then appeared to be his intelligence. All other abilities were

dependent upon it. The correlations, however, were far from unity, which would indicate a perfect correspondence.

To see what influence a specially created school environment would have on the abilities of these children, a period of two years was devoted to special instruction tending to bring out every ounce of ability and effort of which each child was capable. The school subjects disliked by individual pupils were made interesting to them; and moreover, to stimulate them to the utmost, incentives of many types were introduced. At the end of the two-year training period different forms of the same tests were again given. When the correlation coefficients were computed, they showed that the interrelationships of the tests for achievement and the tests for intelligence had increased remarkably. In other words, this experiment showed that when the differences due to lack of interest or to lack of incentive were removed, children could do equally well in every school subject. The only limitation to their achievement under these ideal conditions of learning were those imposed by their inherited ability to learn. These experimental data fitting in with the experiments of Burt in London and the G theory of Spearman have furnished a totally new basis for the grading of children, their promotion, and their teaching.

As a result, in every progressive school the child is first given various tests to get an approximation of his ability to learn. He is then expected to have the same relative standing in all of his academic subjects that he has in his native ability to learn. This basic principle has become at the present time the fundamental tenet of education in the United States. Various statistical devices have been introduced which with the aid of tables constructed by research bureaus serve as definite tools to aid the teacher in adjusting her demands to the individual differences of her pupils.

It is difficult to determine which is the more spectacular aspect of all this research work, the actual doing of the research or the rapidity with which practice and theory have been modified as a result of the research. The complete readjustments which have been necessary have been effected only through efficient administrative heads in the universities and through the research and administrative bureaus of large cities; these educators have demanded that practitioners learn

of the new work being done. To the degree to which the workers in these fields are able to appreciate the work done by the research men and to modify not only their methods of work but also, what is more difficult, their methods of thinking, are they intelligent members of their profession. Bold today indeed is the person who holds on to an ancient hypothesis or sets up new ones for himself without first submitting them to the cold impartial processes of experimental evaluation.

BIOMETRICS APPLIED TO PUBLIC HEALTH

RAYMOND FRANZEN, PH.D.

Research Director, School Health Study, American Child Health Association

PROFESSIONAL work of all types is dependent for its progress upon research. Policies have their foundation in research; disputes are adjudicated by it; practices are qualified through its interpretation. Much of the scientific fact basic to the profession of public health is furnished by other sciences such as bacteriology and pathology. There is, however, a need in this profession of direct evaluation of its own problems. There are questions that cannot be decided by truths borrowed from other fields of research. These are questions such as "What difference does it make in nutritional status to expose a group to any given diet?" or "What kind of public health organization serves best to reduce infant mortality for a city having a given economic status and racial composition?" or "What kind of information should a public school teacher have in order to best promote health habits, attitudes and knowledges?" or indeed such a fundamental question as "What are health habits, attitudes and knowledges, and to what degree do they promote resistance to disease and cut down the incidence of infection?"

Attempts to answer such questions as these involve a choice of scientific method. Nothing was more natural in the field of public health than to model research procedure upon those sciences in which public health workers had been trained. This meant a conventional

experimental routine where two groups "alike in other respects," but different in terms of the quality in question were observed and measured for effect of the condition which was different by the definition of the problem. The difficulties arising from the application of this method lie in the phrase "alike in other respects." Two groups are never alike in other respects. Whereas it is possible to control conditions in a laboratory it is impossible to control conditions when the data are groups of human beings whether these groups be sociological units representing a city, grade units representing portions of a school or institution units representing groups of orphans. For instance, influences which cannot be controlled far outweigh the influence upon children's heights and weights exerted by any difference in diet applicable to human beings. (Difference in diet applicable to rats may be extreme enough to show the influence of this difference, but we are very severely limited in the differences which we may apply to the diets of children.) It may easily be shown that two groups of individuals, however much they may be alike in skeletal framework at the outset of an experiment, will differ materially in this regard at the end of this experiment, and this difference will show in the weights of the two groups in a fashion which entirely swamps any influence food difference may have made. Similarly differences in infant mortality between cities are due to a very large extent to socio-economic factors which cannot be controlled in the conventional experimental sense when comparisons leading to the evaluation of policy are desired. Successful comparisons of teachers with a view to estimating the influence of different types of teacher training involve the assurance that the teachers compared in this respect are alike in a host of ways irrelevant to the experiment, and that the children whom they affect are alike also in many aspects of previous training and intelligence. It is impossible to set up two groups who are alike in these many necessary ways.

If these necessary controls cannot be established, how then are we to achieve answers to such questions as these? The answer lies in measurement and biometric method. We can measure factors which we cannot control. We are able to measure and eradicate the influence of anthropometric qualities upon weight and so precipitate the influence of given variations in diet. We are able to determine the infant mor-

tality status of a city independent of the influence of racial constitution, economic status, number of unemployed and amount of female employment when these sociological factors have all been measured and duly correlated with the infant mortality. The keynote to biometric method is the measurement of all qualities involved. If many groups are used instead of two and if the influence of each variable on each other variable is found then we are able to ascertain the causal compositions of these variables upon the desired criterion. This not only allows a removal of measured influences which cannot be controlled but also minimizes the effect of unmeasured interfering factors because the influence germane to the solution are traced on many levels instead of one.

Problems dealing with biologic fact always involve individual differences. Thus the influence of height upon weight must mean the influence of individual differences in height upon individual differences in weight. The influence of skeletal framework upon weight involves a relation of dispersions in height, breadth, depth and weight and the various interrelations of such dispersion. This in itself points directly to a method of correlation which is the foundation of biometric research. To find the true relation between height and weight in twelve-year-olds we would not compare a group who were four feet tall with another group who were five feet tall to see how much difference in weight results. We would very naturally find what influence *all the variations* in height have upon *all the variations* in weight. Similarly if we want to know the influence of teachers upon health attitudes we must determine what influence the variations of teacher ability have upon all the pupil attitude variations which are measurable.

True causation is not sacrificed by a use of this method. Its ramifications allow an analysis which shows causes as true as does the conventional experimental routine. Thus if we wished to know the effect of intelligence and economic wealth of fathers upon the intelligence of children, provided these qualities were properly measured, we would be able to find the degree to which intelligent fathers, who are poor, nevertheless have bright children; and also the degree to which rich fathers, who are stupid, nevertheless have bright children. This will allow an analysis of the independent influence upon the intelligence of

children by intelligence of fathers and wealth of fathers. (This is not by use of a partial correlation but by use of the comparison by subtraction of two multiple correlations squared each with a zero order correlation squared.)

Biometric method has made many contributions in fields where control was impossible and where biologic variability was involved. It offers many possibilities in the field of public health because public health research is faced with these same delimiting factors.

WEIGHT, GROWTH AND NUTRITION

Introductory Remarks by Doctor Wood

The weighing of children has been very prominent in the program of health work for growing children, during the last decade particularly. The significance of weight in relation to sex, age and height, has been interpreted in an almost incredible variety of ways, many of these interpretations made by earnest health workers in a manner that was never advocated nor sanctioned by those whose names have been connected with some at least of the height-weight-age tables.

With the best knowledge available, without tabulation of actual data in an estimation of results, I believe that others will agree with my own conviction that, on the whole, the practice of weighing children, even with all of the errors involved in this program, has resulted in much more benefit than harm to the multitude of children affected.

In health programs involving the weighing procedure with various methods of recording, charting and judging the actual weights in relation to so-called "normal," "average," or "standard" weights, numberless children have adopted improved ideas, attitudes, and habits regarding eating, resting, sleeping, playing, bathing and elimination, and other items of living. Many children have had genuine health defects revealed and corrected in the effort to discover the alleged causes of "weight deficiency." On the other hand, undoubtedly, many children have been encouraged to adopt habits, particularly of eating, which were unnecessary and in some respects not conducive to better health nor to better nutrition.

Parents in larger numbers, probably, have been unnecessarily disturbed through the reports sent home to them regarding the underweight state of their own children, with the over-zealous and not entirely wise or necessary recommendations to them regarding the importance of trying to help their children to increase their weight up to an alleged normal standard.

A good many physicians have at times been quite naturally skeptical regarding the significance and importance of weight deficiencies in children brought to them for medical advice, and have expressed opinions confusing to the parents, and perplexing and often disturbing to the earnest but misguided health workers

These mistakes in erroneous interpretation of the significance and importance of the weight of the individual child have occurred not only in the case of individual health workers, but have also been presented in publications put out by responsible agencies.

The height-weight-age tables were never intended to indicate the average weight as the health standard to which any child or children should be expected to conform, and it is further a serious mistake to organize classes and to give special attention to children for the improvement of nutrition, and of health habits in general, in order that the weights of these children may be made to conform to the average weight.

Recent studies of the scientifically sound and dependable measurements and certain other indices of growth, nutrition and health of children, and especially the latest of the research investigations, embodied in the School Health Study of the American Child Health Association, point very definitely to the necessity of a careful reconsideration of the practices in vogue, in which the state of nutrition and health of individual children have been estimated by comparison with the tables showing the average weight of children for height, age and sex.

Some of this very significant and important evidence will be presented in the program this afternoon. It is apparent to some of us who have not directly participated in these actual measurements of children, and in the tabulation and interpretation of these measurements, that some of the new measurements promise very definitely to provide useful indices and aspects of nutrition and health of children,

and it is further evident that weighing should be definitely understood and used as a measure and index of growth rather than of nutrition or health.

The height-weight tables were intended originally, and by those who prepared them, to be used as a means of showing to what extent a child of a given age and height conformed to, or departed from, the average weight of a representative group of similar age and height. Departure below or above this average was to be regarded as a warning signal, suggesting to the physician, or to other health workers, the desirability of further inquiry by a physician to determine the probable causes. Many physicians, and some of the non-medically trained health workers, have used the weight tables in this manner, and have, without exact classification, either satisfied themselves that a narrow skeletal build justified a weight below the average, or that a broad type of physique or constitution in some cases explained weight above the average, and in many cases efforts were made to advise dietary or other hygienic regulations which might help to supply deficiencies which seemed to exist.

It is desirable, at the present time, to strongly recommend that the weight of children should not be taken and recorded as an index of nutrition or health, and we expect to have presented to us in the report of the School Health Study the prospects for new measures which will reveal individual differences of children in relation to aspects of development and nutrition.

It is desirable, however, to utilize the measuring and weighing of children as indications or measurements of growth, not of nutrition and health. The weighing and measuring of growing children, at reasonable intervals, is still to be advocated as a valuable educational procedure, especially when used in conjunction with the very general and popular interest in weighing and measuring, not only by parents but by growing children themselves. It is desirable to direct attention to growth. It is a useful procedure for children, when old enough, to weigh themselves, and to become skillful in the use of the scales, and in measuring of stature. It is a useful educational procedure for children, in the proper stage of intellectual learning and skill, to record and plot their own trends in weight and height over a period of time

All this will be very valuable provided we do not think or imply that a child is less healthy or less well nourished because he is any given amount or percentage under average weight for his height and age. To note the really significant changes and trends we should compare a child's weight with his own former weight, not to the weight of other children of his height and age.

PHYSICAL MEASURES OF GROWTH AND NUTRITION

SOME RESULTS OF THE SCHOOL HEALTH STUDY

RAYMOND FRANZEN, PH.D.

[Dr. Franzen's talk consisted of a review of the second monograph of the School Health Study which is entitled *Physical Measures of Growth and Nutrition*. This was published in September, 1929. A brief statement of some of the main points given by Dr. Franzen are presented as they appear in the monograph.]

MEDICAL JUDGMENT OF NUTRITIONAL STATUS

GENERAL estimates of nutritional status (modified Dunfermline scale) by qualified physicians were analyzed to determine the accuracy of clinical judgment and the factors which are used.

This analysis was summarized as follows:

- 1 Agreement between ratings of nutritional status made by physicians is too small to endorse this form of measurement
- 2 An analytic rating scale using forty-six items of judgment does not satisfactorily improve these ratings.
3. The items of an analytic rating scale in greatest agreement with total judgment are those dealing with amount and quality of muscle and with amount and quality of subcutaneous tissue.
- 4 The composite of twelve objectified measures agrees more closely with the ratings of any physician than this physician agrees with his colleagues.
5. There is a very wide disagreement in the emphasis bestowed by physicians on each of twelve anthropometric traits.
6. The main emphasis in judgments made by physicians is on weight and muscle size when allowance has been made for skeletal dimensions. The physician wants to use subcutaneous tissue but fails to do so.
- 7 None of the physicians whose judgments were studied made the proper allowance for skeletal dimensions.

AN ANALYTIC ACCOUNT OF WEIGHT

The factors which account for the individual differences in weight of children other than age were very thoroughly studied, because of the common practice of computing deviations in weight from tables of averages and expressing these deviations as per cent under or overweight. This analysis bears directly upon the question of use of deviations of 7, 10, 15 per cent below average weight as an index of nutrition.

The findings regarding the factors which account for weight were summarized as follows:

1. The correlation of height with weight is not nearly as high as the correlation of other skeletal combinations with weight, therefore it seems that height is insufficient skeletal information to use as a basis of weight classification. Individual differences in chest dimensions and hips are even more important as determinants of variations in weight. Being underweight for a given height is very likely to mean small chest and hip dimensions
2. Experimental results which attribute nutrition conclusions to comparisons of groups in weight-height ratios may be very much in error due to hip and chest variations of the groups
3. The multiples of five skeletal dimensions with weight are high enough to make unimportant the variation amongst children in weight when taken only in relation to skeletal peers. If individual differences in weight not due to skeletal differences were an important result of recent history of food, sleep and the expenditure of energy, then the variability of weight amongst children with the same bony build would be much larger than it is
4. The multiples of all eleven factors with weight are near unity, therefore it seems that practically all the individual variations in weight may be assigned to its measurable components. Analytic statements will show not only that a child is underweight but just *why* he is underweight in terms of other physical traits.
5. Variations in amount of subcutaneous tissue have little relation to variations in weight amongst children who are skeletal peers. Therefore diagnoses based on weight indices neglect this very important factor.

- 6 The correlations are so high generally as to constitute evidence of a great many common elements but also a subtle but certain balance in which nine or ten elements play an important part. We therefore desire formulae which will indicate the symmetry of development by measuring a child in each trait in terms of what might be expected from his dimensions in the others.

AN ANALYTIC ACCOUNT OF MUSCLE SIZE AND AMOUNT OF SUBCUTANEOUS TISSUE

The development of a method of measurement of certain aspects of nutritional status was accordingly presented as follows:

Summary of the Proposed Measures Intended to Approximate Nutritional Status

Material presented thus far has given consideration to five possible methods of estimating the degree to which the nourishment of a child is satisfactory. These five are:

- A. Actual weight minus the weight to be expected from height
- B. Actual weight minus the weight to be expected from height, bisacromial width, chest dimensions, and width of hips
- C. Actual upper arm girth minus the upper arm girth to be expected from height, chest dimensions, and width of hips.
- D. Actual calf girth minus the calf girth to be expected from height, chest dimensions, and width of hips.
- E. Actual amount of subcutaneous tissue over the biceps minus the amount of subcutaneous tissue over the biceps to be expected from height, chest dimensions, width of hips, and bisacromial width.

The arguments which influence us to advise against any height-weight determinations (A above) are as follows:

- 1 Individual differences in chest dimensions and hips are even more important than height as determinants of variations in weight. This leads us to the conclusion that children who are "underweight" on the height-weight tables are underweight mainly for other reasons than condition of muscle and subcutaneous tissue and yet it is these latter that we customarily associate with nutrition.

- 2 The correlation of height with girth of upper arm and girth of calf for constant values in other bony dimensions is practically zero, and height with amount of subcutaneous tissue for constant values in other bony dimensions is negative. When we expect more weight for tall children than for short ones (as we do by use of height-weight tables) we are penalizing tall children unduly in regard to the weight which is associated with girths.
3. The correlations of weight for a given height with girth residuals and with subcutaneous tissue residuals are low. If girth and subcutaneous tissue in terms of body build measure aspects of malnutrition then weight-height determinations are not measures of these same aspects. It seems impossible that weight for a given height should to any large extent measure some aspect of nutritional status not apparent in condition of muscles and subcutaneous tissue. We therefore conclude that weight-height ratios measure mainly developmental factors not associated with nutrition. The low correlations which follow substantiate this conclusion.

*Actual Weight Minus the Weight Expected from Height, Correlated
with Actual Girths and Amount of Subcutaneous Tissue, Each
Minus Expectations from Skeletal Components **

Age.....	Girls			Boys		
	10	11	12	10	11	12
Weight-Height Residuals with						
Arm Girth Residuals . . . . .	.36	.32	.33	.42	.41	.37
Calf Girth Residuals. . . . .	.31	.29	.28	.34	.37	.33
Amount of Subcutaneous Tissue over the Biceps Residuals .	.19	.19	.18	.26	.27	.22

* Methods used are explained in Appendix C-6.

The arguments which eliminate actual weight minus weight to be expected from five skeletal dimensions (B above) are:

1. The multiple of skeletal dimensions with weight is too high to make the residuals seem important
2. The elements of weight not predicted by skeletal dimensions are predicted by girths, therefore a direct consideration of girths would seem the preferable technique.
3. We may analytically account for all individual differences in weight except very small residuals which are easily attributed

to differences in elimination, clothing and errors of recording. Weight is the combined result of many factors of growth and is highly ambiguous as a diagnostic measure.

The reasons given for emphasizing the use of the two girth residuals (C and D above) are:

1. All clinicians are strongly influenced in their judgments of nutritional status by individual differences in girth of upper arm and calf.
2. There is some evidence of a general tendency to be large or small muscled in relation to one's skeletal peers. It is further probable that the use of arm girth residuals and calf girth residuals together indicate the degree of muscle adequacy over the whole body.
3. Girth of upper arm and calf include a large proportion of that element of weight not represented by bony frame.
4. The multiple correlation of either arm girth or calf girth with five skeletal measures is considerably lower than that of weight with these same five measures. This makes the residuals large and more probable than weight residuals as physical signs of recent disturbances in the nutritional process.

Our reasons for recommending the use of actual amount of subcutaneous tissue over the biceps minus the amount of such tissue to be expected from five skeletal measures (E above) are:

1. It is the accepted opinion of the medical profession that amount of subcutaneous tissue is an element in nutritional status. Whenever a child is considered as totally satisfactory he is very sure to be called satisfactory in this quality also and vice versa (Table 3).
2. Nevertheless, amount of subcutaneous tissue does not play a part in their actual judgments. Children who are actually unsatisfactory in this quality as measured are as often as not called satisfactory totally (Table 5).
3. The multiple correlation of skeletal factors with this quality is between .5 and .6, which is low enough to insure very large residuals.
4. The subcutaneous tissue residuals have a low correlation with the girth residuals and therefore may be considered as valuable additions which do not in any way duplicate the girth residuals in significance.

5. Differences in amount of subcutaneous tissue over the biceps represent differences in amount of subcutaneous tissue in other portions of the body.*

For the statistical analysis and data to support the conclusions presented in this talk, reference was made to the original monograph. It was pointed out that the tables for use in the measurement of individual children were presented in the monograph for 11-year-old boys, and that further tables for boys and girls from 7 to 12 years inclusive would be published during the coming year.

* Our data, of course, merely show a high correlation between amount of subcutaneous tissue over the biceps with amount of subcutaneous tissue over the triceps for given skeletal composites. It is desirable at some future time to show that these two are themselves highly correlated with amount of subcutaneous tissue in other portions of the body. Our observations definitely lead us to believe this is true, especially since the correlation of these two with amount of subcutaneous tissue over the calf is as high as is reasonable in the light of the unobjectivity of this latter measure.

In this connection we may note that of these two there is a consistently greater amount of subcutaneous tissue over the triceps. This seems to indicate that our two measures on the upper arm are not measures of the same area of tissue.

THE CLINICAL DIAGNOSIS OF NUTRITION

LOUIS C. SCHROEDER, M.D.

*Assistant Professor of Pediatrics, Cornell Medical College,
New York City*

THE assertion or assumption that nutrition can never be diagnosed by any measuring device is wholly without meaning. It is difficult to understand why prejudice should exist against mechanical aids to diagnosis. For anyone to assume, no matter how wide his knowledge of nutrition or his experience with children, that he can always diagnose nutrition with his eyes and hands alone is scarcely wise.

Measuring devices such as the Pelidisi of Pirquet or the tables of Wood have had their place no matter how we may rail at certain inadequacies which we know are inherent in them.

They have served and do serve a very useful purpose; chiefly educational to be sure but nevertheless, useful. There has never been any measuring device that has identified all malnourished children. It is not at all likely that any ever shall but with the refinements of tech-

nique that must come from combining what is known to researches such as the recent study of the American Child Health Association, and a unanimity among physicians as to what is understood by nutrition, a practical measuring device may be evolved, free, for the most part, from the crudities of its predecessors, yielding uniform results and in the hands of either physician or nutrition worker a most valuable ally.

The best evidence that mere observation, even on the part of experienced pediatricists, may be inadequate in diagnosing nutrition, is afforded by a consideration of the data furnished in the second monograph of the School Health Research Series published by the American Child Health Association. This monograph appears under the title, *Physical Measures of Growth and Nutrition*. It has been written by Dr. Raymond Franzen, the Research Director of the School Health Study. Those who served in this study were only concerned with the degree of attainment of a good nutrition status, among groups of children on a given day.

Conditions were not such as obtained in private practice. There was no knowledge of racial stock, of familial idiosyncrasies of growth, of previous illnesses or difficulties in feeding, of possible endocrine dyscrasias or any of the other factors which are available when a child has been under observation for some time. The conditions approached those which surround workers who must pick out malnourished children from school classes or other groups. Under these conditions it is not surprising that good clinical pediatricists differ in their estimates.

What is a matter of some concern, however, is to learn that among these physicians it is common to have correlations between .50 and .70 with some below .40 and the highest only .82.

The factors responsible for this low correlation are due to training, personal biases, as, for instance, against too thin or too fat children, a difference in interpreting the signs by which malnourishment is recognized, and last, but by no means least, the ambiguity concerning the term "nutrition."

That much higher correlations would be found between pediatricists if they might have followed the procedures they employ in private practice, can scarcely be doubted. Nevertheless, there does seem a real

need for a searching examination of these objective judgments which are employed. This should prove salutary from the standpoint of private practice and of inestimable value to those who are compelled, often under handicaps, to separate the good from the poorly nourished when dealing with large numbers.

Surprise is frequently expressed that such varying percentages of malnutrition are found among what are, apparently, homogenous groups of children in different parts of the country. There should be no surprise. There never has been any close agreement as to what represents good nutrition. There has been also the mistake of forgetting that measuring devices should be used as aids and not as absolute standards.

The present problem of the clinical diagnosis of nutrition now demands: examination of those objective judgments which are used and which give such apparently poor results; a definition of nutrition; our aid in devising a measuring device, the ideal of which is one yielding uniform results under all conditions.

That wide differences exist as to what constitutes good nutrition will become apparent at once to those who will study the different definitions which are available.

In its strict physiological and biological sense, nutrition is the sum of the processes by which an animal takes in and utilizes food substances. For many physicians this is too limited, too narrow an interpretation to apply to humans. Thus a recent definition by Seham, whose work in nutrition and fatigue is so well known, states that good nutrition is characterized by adequate action of the internal organs, a stable nervous system, good posture, sufficient muscular strength, well functioning special senses and good inhibitions and coordination.

This is an all embracing statement. One might correctly say it was a description of an optimal child. The obvious defects in the all embracing definitions are easily seen. It is possible for a child with a special sense defect to have good nutrition, just as it is for a youngster whose inhibitions are not what they should be. A further drawback is our not knowing just what is adequate action of the internal organs or when muscular strength becomes insufficient.

To properly diagnose nutrition status, functional or organic dis-

orders must be considered apart. Round shoulders may be the result of poor nutrition or may even lead to it but should not be used as an objective judgment. Many judgments are given a weight entirely out of proportion to their significance. Most of them might easily be discarded.

There are physicians who are content to diagnose the nutrition of children by looking at them. They judge apparently with little regard to height, weight, muscular development, amount and quality of subcutaneous tissues or condition of the mucous membranes

They are content with their diagnoses because in their practices there are many children of the same age who exhibit the greatest variations in height, weight, skeletal builds and amount and quality of muscle and subcutaneous tissues, many of whom are seldom if ever ill, do not tire easily, eat and sleep well and carry on as normal children should.

Technically they are not diagnosing nutrition. They are passing judgment upon the child as a whole, using all those factors which are included in the before mentioned all embracing definitions. Here the ambiguity of the term "nutrition" becomes especially apparent.

Not until it is universally recognized that it is desirable to have a content of knowledge concerning the nutrition of children, which deals primarily and chiefly with food and food habits, rest and personal hygiene, will children be specially judged from this nutritional standpoint. With the science of nutrition making the strides it is, the need of this body of knowledge is becoming increasingly imperative. Whether it will be helpful to think in terms of and to use the name "essential nutrition," remains to be determined.

An analysis of the objective judgments used to determine the nutritional status of children is necessary. The two most commonly employed are weight and height.

Weight has always been the standard for judging the nutrition of infants. It was natural to carry the idea over for the older children where its usefulness is decidedly limited even with the additional component of height.

Stressing weight in infancy has not been a good practice. It has developed in many mothers the idea that every baby must weigh so much at a given date.

Pediatricists especially are familiar with the so-called "skinny child." They may be the counterparts of those adults whose presence among us had developed the age old adage of "A lean horse for a long race."

So far as resistance to disease is concerned, the skinny child, other conditions being equal, will more than hold his own with his heavier playmates. In infants it is quite generally agreed that the heavier infants have less resistance, especially to the upper respiratory infections. Resistance to disease, however inviting a subject, is highly speculative and cannot be included in the strict interpretation of the nutrition status. It is mentioned chiefly to show that the lack of weight does not necessarily handicap an infant or child in his ability to ward off infections, while on the contrary an excess of weight not infrequently does.

Weight, in the clinical diagnosis of nutrition, while a factor, must not be over-emphasized and used only with other data and must be thought of as the total of a number of things and that a consideration of these, especially in their relation to each other, will yield far more valuable results

Weight and height are two of some fifty judgments which may be employed in diagnosing nutrition. The inadequacy of weight has been proved. Of what value is height?

Height is a measure of growth rather than of nutrition. Height and weight are intimately connected but in judging nutrition the same drawbacks which make weight used alone or with height as a component are present and one must avoid giving height too great an emphasis. Height is but one measure of a skeletal frame. Even those physicians who have followed the latest anthropometric teachings and divide children into the linear and stocky types, thus trying to make allowance for differences in build, only partly accomplish what they desire.

Many of the laity are familiar with the cycles of growth in older children and are not particularly concerned if a boy or girl grows three inches in height over a period of 4-6 months whose weight remains stationary. It is this variation in skeletal growth not only in length but in every direction which may be directly responsible for variations in weight of children, not necessarily as many physicians

and nutrition workers imagine, a failure to get or utilize the proper food, insufficient rest or undue fatigue.

In judging nutrition it will be advantageous if height and weight are considered as separate measures of growth and not as indicators of nutrition. They are overall indices, are limited in their application, and neither helps directly in our appreciating what a given nutrition status is. What is true of these objective judgments is equally true of the condition of the skin and mucous membranes, dry lusterless hair, dark circles under the eyes, worried or anxious expressions, depressions above or below the clavicles, winged scapulas, poor posture or endocrine imbalance. These hinder rather than help when judging nutrition.

Recalling our basic knowledge of the curves of growth, it will be remembered that two factors are active, one representing the chemical and physical reactions of the food stuffs ingested and the other having relatively little to do with food at all, the inherent growth impulse itself, an impulse about which little is known but which Robertson compares to the specific velocity of a chemical reaction, at least in so far as it seems to obey the laws of mass action.

With this in mind it will be helpful if height and the other skeletal dimensions, breadth and depth of chest, bisacromial width, and intertrochanteric width are considered primarily as an expression of the growth impulse factor and the laying on of muscle and subcutaneous tissue as primarily of the other factor.

This is an artificial division but it does place height and weight in their true perspective, as indicators of growth rather than of nutrition.

This is most desirable if the ambiguity surrounding this term is to be cleared up and a solid foundation laid for the correct understanding and estimation of it developed.

If proper growth leads to a certain skeletal frame, properly covered with normal muscle and subcutaneous tissue, nutrition may be judged by the manner that this is accomplished. Logically it follows that the amount and quantity of muscle and subcutaneous tissue in relation to the entire skeletal frame, and not to one dimension of it, will give us an index of the nutrition status.

In the light of this, criteria of skeletal builds, of girth of muscle

and thickness of subcutaneous tissue in all periods from infancy to adult life are needed. With these criteria it should be possible to approach the problem of diagnosing nutrition, secure in the knowledge that the problem is recognized clearly.

If these hypotheses are correct then the proper application of these criteria to groups of children should come closer to diagnosing nutrition as an entity than the judgment of any one physician or the use of any series of objective judgments

The Association's work as analyzed and described by Doctor Franzen apparently proves that this is true and he has added other data of tremendous value to all those interested in the nutrition of children. It by no means solves the problem of the asymmetrical development of certain children, does not take out of the hands of physicians the necessity of deciding what an unusual deviation has come from or what form of treatment is necessary. It points the way to a sound scientific consideration of the problem of nutrition in childhood and offers a measuring device that will undoubtedly find wide use and an ever increasing value.

CONTRIBUTIONS OF ANTHROPOMETRY TO AN UNDERSTANDING OF GROWTH AND NUTRITION

RICHARD E SCAMMON, PH.D

Professor of Anatomy, Medical School, University of Minnesota, Minneapolis

[This paper was not received in time to be published in the Transactions. The paper will be sent separately.]

PART II

REPORTS

REPORTS OF THE AFFILIATED AGENCIES

The following accounts of their work were sent by the Agencies, an asterisk denoting that a printed report was also sent in

CALIFORNIA

LOS ANGELES

Los Angeles County Public Health Association

Nutrition and Health Habit Demonstrations were inaugurated by the Association for the mothers and preschool children attending the Maternal and Child Hygiene Conferences held by the County Health Department at the various health centers. These demonstrations were set up in the reception room and offered an opportunity to profitably use the time of the mothers while they were waiting to see the physician. Among the children were the tuberculosis contacts reporting for observation.

The Nutrition Demonstration was a project to familiarize mothers with the simple fundamentals of nutrition and explain the need of an adequate and well-balanced diet for the maintenance of health. Food set-ups of actual food showing values and costs were arranged as exhibits. Discussion of food selection was led by the nutritionist, and sheets giving information regarding the food set-up, menus and recipes were distributed. No attempt was made to prescribe diets for individual cases. The demonstration showed that nutrition work in a clinic to function fully must include both the general teaching of the principles of nutrition and special dietary case work. There were 108 nutrition demonstrations with approximately 2,300 visits of mothers.

Health Habit Training Demonstrations showed how health habits may be formed through natural play situations. The set-up consisted of toys and materials which had been proven for their definite value in teaching a health education program. The work with the children was direct while the methods employed by the Health Habit Instructor were observed by the mothers. The child was encouraged to engage in the play which pleased him most, and the instructor observed closely the habits which had been previously formed and substituted new methods of action for such habits as needed correction. Selected books and magazines on child health and care were referred to the mothers by the instructor, and at each conference a sheet prepared by the instructor on some special problem of child training was distributed. In addition to this general demonstration individual case work was also done at the request of the mothers and child hygiene physician. There were 141 demonstrations with approximately 2,634 visits of children.

Eighteen Summer Health Schools for physically below par children were conducted for eight weeks during the summer under the joint auspices of

the Tuberculosis Committee of the Association and the County Health Department. They operated in the local school buildings as day schools with a preventorium schedule which included health teaching, supervised rest, sun baths, recreation and hot lunches. The children were selected by the school nurse from age groups of 6 to 11 years. There was a maximum of 30 children to a school. A supervising staff cooperating with district health officers included the medical director and assistants, health educators, nutritionists, and physiotherapists. The local staff of each school comprised a teacher, nurse and dietitian. The total enrollment in the 1928 schools was 528 children, admitted after a thorough physical examination under the following classifications: tuberculosis contacts, 19.7 per cent; arrested tuberculosis, 7.5 per cent, cardiac cases, 15.6 per cent, malnourished, 71.6 per cent. It was found that 46 per cent of the children enrolled were 10 per cent or more underweight and of the 450 who were weighed at the close of school it was found that 86.44 per cent had gained. In addition to the regular physical examination, X-ray examinations of the chest were made of 78 which showed 41 with tracheo-bronchial tuberculosis and 7 with the adult type. The aim of the schools is not to take the child out of the home but to take into the home the health standards of the school. Parents were required to be present at the time of the physical examination; to hold two conferences with the nutritionist regarding the diet of the child, and two with the physiotherapist regarding the correction of postural defects. As a health project the Summer Health Schools afforded an opportunity to use the summer vacation for an intensive course in health education and rehabilitation for physically under-par children, which reached not only the child but also the home, the school and the community. This was the fourth year that the Summer Health Schools had been conducted and a re-examination eight months after the close of school each year showed that not only the majority of the children maintained their gains but continued to gain, and that the health schedule demonstrated was adopted in their homes.

COLORADO

DENVER

The Denver Tuberculosis Society

The third city-wide observance of Child Health Day, with this day as the culmination of Health Week, was very successfully carried on this year under the auspices of the Denver Public Health Council, which is composed of representatives of all the health agencies of the city and a number of other agencies, including the Denver County Congress of Parents and Teachers. General observance of Child Health Day in the public schools was under the auspices of the Public School Health Education Department and in the private and parochial schools under the auspices of the Denver Tuberculosis Society.

The Preschool Health Education Conference Centers, organized for the second year under the auspices of the Denver County Congress of Parents and Teachers, have aroused increased interest. Eighteen conference centers have been active in 18 schools with an enrollment of 489 children. The centers have met monthly for a round-table discussion of the mothers and have been in charge of three teacher-nurses of the staff of the Denver Tuberculosis Society. A nurse's inspection has been made, the children have been weighed and measured and have then enjoyed supervised play while the mothers were meeting. Parents have been urged to take their children regularly to the family physician and the family dentist, and scores have been given on health examinations, the correction of physical defects, improvement in health habits, and immunization against diphtheria and smallpox. No health examinations have been given at the Conference Centers. Home visits have been made by the staff workers.

The most important result of the conferences, so far as mothers are concerned, cannot be measured, that is, the extent to which each has gained in ability to recognize and solve her own problems in child training. The round-table discussions, at the request of the mothers, have covered in addition to topics relating to physical health such topics as the following: Principles Underlying Habit Formation, Obedience and Discipline, Rewards and Punishments, Fears and Worries, Imagination, and Training for Responsibility.

For the children the educational value of the meetings has been rather limited. An hour or an hour and a half once a month is too brief a time in which to accomplish a great deal. However, the regular weighing is valuable as an index of health and growth, and even a monthly opportunity for social contact with children of his own age and in new surroundings is an advantage to a child. The play period with a teacher-nurse in charge assisted by a member of the P.T.A., has furnished opportunity for observation of individual children that has frequently given insight into special needs or possibilities.

CONNECTICUT

BRIDGEPORT

Visiting Nurse Association *

Our prenatal work has grown steadily, and we find that forty-one per cent of all our cases for the year 1928 were prenatal cases.

We have been given accommodations in one of the large department stores for weekly prenatal conferences. The average attendance for 1928 of local mothers was nineteen, with many prospective mothers from surrounding towns. We are now establishing our second group of prenatal conferences on the east side of Bridgeport.

We are including in our prenatal program prenatal letters from the State Department of Health for each patient registered, Motherhood Classes, and Nursing Visits in the Homes

HARTFORD

Visiting Nurse Association of Hartford*

The number of Conferences for Well Babies and Preschool Children has been increased from 13 to 16, at which the only cases that have medical advice regarding formulae, and so forth, are those who can not afford their own family physician. Eleven of the conference rooms are in school buildings, which facilitates securing the interest of the school authorities and also, we feel, increases the interest of the parent in the preschool child.

The work in Hartford is carried on under a generalized program, arrangements for which were completed on April 1, 1929. In five of the districts there are private kindergartens carried on in connection with settlement houses, and our nurses take care of the physical examinations of these children each morning. With the preschool children also the posture and dental programs are emphasized, and physical examinations have been arranged for this past year.

The delivery of the birth certificates secures new contacts in the home. In the prenatal work we do the follow-up from the Hartford Dispensary and three hospitals as well as from private doctors reporting regularly to them. The majority of our obstetrical services are taken care of through early registration with the Visiting Nurse Association. We are called upon for very few emergencies.

Conference attendance for 1928 was: 13,992 infants; 6,163 preschools. During this year we registered our infants under two years, but in January, 1929, we changed our records so that the infants are registered only to one year, to comply with the American Public Health Appraisal Form.

Hartford Tuberculosis and Public Health Society

The activities of the Health Education Committee have been materially increased, largely owing to the fact that more money was allotted to it.

For the first time, the National Tuberculosis Association organized a campaign for the Early Diagnosis of Tuberculosis last March along lines similar to the educational publicity of the annual Seal Sale Campaign. At that time our organization carried on an active campaign including newspaper, house organ articles, window exhibits, moving picture trailers, billboard advertising, talks with movies and without, before numerous groups. Posters and leaflets were widely distributed.

The aim of the Women's Council is to get to the women of Hartford the

purpose of the public health work and what is being done in other cities along the lines we are attempting, and to have them feel the need of this work in Hartford. With this thought in mind, a meeting was called in September, the delegates from twelve organizations being present. They were asked to give a report of the meetings of the Council before their own group and it was suggested that it might be possible to have a director, or a member of the staff of the Hartford Tuberculosis Society speak on the subjects discussed at meetings of their organizations.

Forty-four school clinics were held during the past year with a total number of 1,145 children examined.

A parochial school health program was outlined and accepted by the priests.

Fifth and sixth grade projects were launched in the East Hartford Schools, Mr. Barnes assisting in working out a new form of Health Habit Chore Card.

NEW HAVEN

Visiting Nurse Association *

We have fourteen stations including New Haven and West Haven, and hold fifteen baby conferences weekly, seven weekly preschools and four monthly preschools.

Our baby conferences take care of the child up to two years, as we have not yet changed over to running of our preschool conferences from one to six, though our statistical count so reckons it.

The physical examination is given to each child coming new to conference unless the child is under care of a private physician and comes in just to check up on its weight.

A yearly physical examination is given thereafter.

The preschool conferences have in addition to the doctor and nurse in attendance, a nutrition worker who goes over the diet and habits of the child with each mother.

Prenatal care with us is interpreted by nursing visits in the home. This includes the taking of blood pressure and doing a urinalysis with the permission of the attending physician.

Two prenatal clinics are conducted, one weekly and one bi-weekly.

Two weekly Mothers' Classes are held.

Our Child Health program includes the obstetrical service which supplies a nurse to assist at time of delivery.

MIDDLETOWN

District Nurse Association *

We have made two changes in our Child Health program during the past year. The first was to secure the services of paid physicians. The second

has been the concentration of our efforts, during the month of May, on preschool work. With the full cooperation of the school authorities, parent-teacher association, and school nurses, we set up conferences to have the children examined who were to enter school in September. Our own nurses made one follow-up visit during the summer to any child in need of attention, turning the cards over to the school nurses for further follow-up in the fall. The schools supplied the physical examination blank, and we did the work.

We conduct three combined baby and preschool conferences each week. We attempt to make a monthly visit to all babies and preschools under our care.

With a population of 25,000, we have an average of 90 expectant mothers at a time. Our contact with each mother we find is constant until her child goes to school.

Our work is done under the generalized nursing plan. We have a special Child Welfare Supervisor who keeps the staff informed of the newer things in child health.

In cooperation with a psychiatrist from our State Hospital we conduct a Mental Hygiene Conference once a month. School nurses and social organizations use these conferences. The greatest number attending are children. A psychologist from the Hospital does the mental testing. We think this has covered a need in the community.

We have a feeling that more and more mothers are nursing their babies, and have wondered if other organizations have found the same.

DISTRICT OF COLUMBIA

WASHINGTON

American Federation of Organizations for the Hard of Hearing

During the past year there has been throughout the country a steadily increasing interest in the discovery of hard of hearing children, their medical care and educational needs.

Twenty-three cities in the United States are utilizing available clinics for the examination and treatment of hard of hearing children. There are two ear clinics under the supervision of pioneers in our work, the one at Rochester, New York, with Dr. Franklin W. Bock in charge, and one at the Manhattan Eye, Ear, Nose, and Throat Hospital, New York City, under the direction of Dr. Edmund Prince Fowler.

Instructive Visiting Nurse Society *

The Instructive Visiting Nurse Society of Washington, D. C., carries a generalized public health service. This service includes a complete maternity service and health education on a family basis, which of course includes bedside nursing.

We do not conduct child health clinics or centers or prenatal clinics. Our educational work is carried on through home visits. We make use of the literature of national federal bureaus, the local health department, certain large insurance companies, and so forth.

ILLINOIS

CHICAGO

The Visiting Nurse Association of Chicago*

Miss Edna Foley, the Superintendent of this Association, reports as follows:

The one really new thing that we did last year was to teach all of our staff something about the careful home follow-up of cardiac children. Of course for five years we have had one nurse giving all of her time to work with a special group of cardiac children in one of our large public schools. During the past year, Sunset Camp for Cardiac Children, an organization which takes a group of girls in the spring and boys in the fall, to a heavenly camp on a lake near Antioch, Illinois, and for six or seven weeks gives them a good time as well as very careful supervision of their cardiac strength, asked us to do the follow-up of children who had been at the Camp.

Therefore it became necessary to visit monthly or oftener, cardiac children who were not in the little group of fifty or sixty children at the School. Of course one nurse could not begin to cover the City of Chicago, therefore Miss Jenny made contacts with all of the dispensaries to which these youngsters were reporting and then made out blanks like this. This blank was sent with a marked copy of Dr. Bachmann's article to the sub-station in whose territory the youngster lived.

Visiting Nurse Association of Chicago—Cardiac

Name: James. Address: Pt. of House: 1st fl. R.
Date: June 26, 1929.
Age: 7. Refd by: Spalding School Father, Harry, mother, Edith (dead)
Dispensary: U. of Ill.
History: Attended school from Jan. to June, 1929. Had rheumatism in 1924 and 1925. Had a serious cardiac breakdown in 1928, following pneumonia—was in U. of Illinois and later at Washington Blvd. Convalescent Home.
Orders: T. P. E. Any recent cold or infection? Inquire about rest and diet? Does he attend clinic regularly?
Remarks: Mother died of heart disease in 1928. Father and 2 children live with maternal grandmother. Home is well kept. Grandmother is interested and very cooperative.

Signed.....

Each Supervisor (and we have eleven, one for each sub-station) was responsible for seeing that the nurse in whose district the cardiac child lived, read the history card carefully, read the article just as carefully, made the call intelligently. A call on a cardiac child, especially when the parents are indifferent or over-anxious, is not the simplest thing in the world for a nurse to make. For so many years we have cared for only terminal cardiac cases that it is not easy to learn how to care for a run-about school child who is also registered at a cardiac clinic.

Then before the girls went to Camp last spring and after their final examination by physicians, who gave a tremendous amount of thought and time to the work of the Camp, the nurses, guided by Miss Jenny, once more made home visits. We shall be doing the same for the boys next week, for they go to the Camp about September 6th.

In this way we hope to get under our care more and more apparently well children who need far more home supervision than most people realize

Our work with crippled children is increasing. Whenever we can, the nurses who have had special work in physiotherapy teach the general nurses how to give the exercises; therefore more and more of the patients are first general, then orthopedic; then go back into general again. However, patients requiring frequent muscle examinations and careful muscle exercises are kept under the immediate attention of our twenty-one Infantile Nurses, so-called, because the work must be highly specialized if we are going to benefit the patients.

A hasty count of all the patients recently showed that of 1,390, only 161 were over twenty years old. We got the impression that we were caring for a great many adults because, mercifully, the number of infantile patients is decreasing. We do care for a good many adults, but fracture cases at most get a few weeks or a few months of care, and the largest percentage of our cases remains children or very young people, as these figures show.

Our work is not growing less, for each year more student nurses are coming to us for special training and we are adding more graduates because of the growth of our work. Perhaps we are, in one sense, a laboratory, but only in so far as one patient teaches us to give better care to a similar patient. I like the thought that we are able to start new work but if by starting new work we neglected people in whom no one else took any special interest, I should feel that the new work was a mistake.

Infant Welfare Society of Chicago *

This Society has this past year seen one new development. A Play School was developed in a north side station. The school accommodates from eight to ten children under four years of age who have some special problems

The children come at ten o'clock in the morning, and stay until after the noonday meal, after which time they rest, and then go home "for my nap." The

children are kept only so long as is necessary to clear up the special difficulty, whether it be two weeks or the school year. Every responsibility is put on the parents' shoulders, and they do learn how the adjustments are made. Weekly discussion meetings with the mothers are held. The personnel is the regular station staff, doctor, nurses, and dietitians.

Not a new development, but one of constant and increasing value to our organization is the station service of our volunteers. About three hundred of them during the year weigh and measure the children, and their excellent attendance and reliability have made them a notably useful part of our service. Their personnel is drawn very largely from our organization of centers, the Women's Auxiliary, and is supplemented by a few workers whose connection is individual, and whose service in some cases has extended over a period of many years. The actual service has become of real value to the professional staff, and of incalculable value in bringing real knowledge of the work to a large number of people.

The statistical report for the year is as follows:

	Number Cared for	Conferences Attendance	Number	Home Visits By Nurse	By Dietitian
Infants . . .	11,757	58,075	2,393	74,432	....
Preschool . . .	3,016	14,754	1,038	... ..	20,395

There were 1,398 expectant mothers cared for and 871 delivered cases. There were 5,677 expectant mothers who attended Conference and 523 Conferences held. The nurses made 10,887 home visits.

INDIANA

EVANSVILLE

Evansville Public Health Nursing Association

Our work is rather more intensive and extensive for the size of the community and the territory in which we are located, than is usually found, and for this reason it is not possible to expand the work much in the near future.

The orthopedic work has been increased and we feel the crippled children in our County have every opportunity offered for care. The County pays all of the expenses and the children are cared for at the Riley Memorial Hospital which is located at Indianapolis and is a part of the University group. A nurse from our Association makes two or three trips a month escorting children to and from the institution. All the expenses of the orthopedic work other than the after care in the home is paid for by the county. The expense of the after care is met by the Public Health Nursing Association.

The clinical attendance for the year 1928 at our four Child Health clinics which are held weekly was 7,756. The total individual attendance was 1,543 and the total number of new patients was 898.

The work of our association is generalized and our Child Health work has steadily increased. Next month we are adding the twenty-second nurse to our staff. This includes the Director and supervisors.

We are again conducting Parochial School nursing service for the Board of Health and beginning with January 1, 1930, a physician will be paid for the services which he gives to the examination of these children which number more than 3,000 in the city of Evansville.

INDIANAPOLIS

Public Health Nursing Association *

The Public Health Nursing Association made 73,585 calls during 1928, which was a 16 per cent increase over the previous year.

The maternity service covers about 48 per cent of our work, and includes regular visits to the mothers before the baby's birth, and to 1,650 newborn infants.

The American-born children of our foreign-born parents demand a large part of our attention, because upon them rests to a great extent the future of so many citizens. Diphtheria and smallpox are unknown to school and pre-school children of the foreign-born under our care, and a great many have had physical defects corrected.

There were 53 Diagnostic Clinics held in the American Settlement House.

Over 6,000 visits were made to crippled children, and a study of these cases is showing results in that many of these patients have been dismissed in normal condition.

We try to coordinate our work with the agencies doing similar work and feel that our increase of work has been largely through their cooperation.

IOWA

DES MOINES

Iowa Tuberculosis Association

This year we were fortunate to be able to effect a close link-up of the child health day program with the early diagnosis campaign of the National Tuberculosis Association and the summer round-up of the Parent-Teacher Association.

The Executive Secretary, the Director of Nursing Service of this Association, and the Supervisor of School Nurses of Des Moines served with others on a committee who wrote the section on health of the new elementary course

of study for all the public schools of Iowa issued by the State Department of Public Instruction. The Association made arrangements to serve as many teachers' institutes as possible for the purpose of presenting and explaining to them the health section of the new course of study. A corps of nine lecturers was organized, each holding two institutes a day. Applications were received from 70 county superintendents and 60 institute dates were accepted.

The Director of the Nursing Service of this Association served as Chairman on a committee of the educational council of the State Teachers Association. This council made a study of What Is Being Done in Iowa Schools for the Health of Pupil and Teacher, and gave a report on this study at the annual meeting of the State Teachers Association.

KANSAS

WICHITA

Wichita Public Health Nursing Association

Four Infant Welfare clinics were operated during the year, one of which was exclusively for colored children and conducted by the colored doctors of the community together with the colored nurses.

Two preschool clinics were conducted during the year, at which complete examinations were given, corrections made or recommended, and preventive treatments given, including vaccination against smallpox and typhoid, and toxin-antitoxin.

During the summer months a sunshine clinic was maintained, at which infants and preschool children received treatment.

The following prenatal care was given: Prenatal letters were sent to all cases entered on our records; clinics for examination and follow-up care were conducted for indigent patients. Nurses' visits were made in the homes. The Association also continues to maintain its delivery service and after care.

KENTUCKY

LOUISVILLE

Public Health Nursing Association *

There has been no particular change in the program of the Louisville Public Health Nursing Association in 1928. We are conducting a generalized service, offering prenatal, infant, preschool, and bedside nursing services. The Association conducts sixteen infant welfare clinics weekly and assigns nurses to the two prenatal clinics and one post-partum clinic conducted weekly at the City Hospital.

The Infant Welfare Clinics of the Public Health Nursing Association are open to well children only. Sick children are sent either to their private physicians, or to one of the free treatment clinics in the city. Each new baby that is admitted to the center receives a complete physical examination on his first visit. A re-examination at six-month intervals is given all babies. Appointments are made for return visits to the clinics for consultations. The babies under six months are supposed to return every two weeks, and babies six months to a year, once a month. The importance of weekly weighing is emphasized. In making the physical examination of the infant, the doctor observes the following points: height, weight, general appearance, skin, scalp, eyes, ears, buccal cavity, teeth, tonsils, nasal passages, lymph glands, heart, lungs, abdomen, bones, muscles, genitalia, posture, and nutrition. The doctor advises the mother in regard to the baby's diet, prescribing the foods suited to the age and condition of the child as necessary.

The City Board of Health conducts toxin-antitoxin clinics each year in the centers for the immunization of infants and preschool children. Many of our mothers are taking advantage of this opportunity, and by two years of age, especially, many of the children have received the diphtheria toxin-antitoxin.

The Association cooperates with the Obstetrical Department of the University of Louisville in its prenatal clinic by providing the nursing personnel for the clinic, which is also used as a teaching clinic for the medical students. All cases registered at the prenatal clinic are routinely referred to the Public Health Nursing Association for prenatal nursing services in the homes.

LOUISIANA

NEW ORLEANS

Child Welfare Association

The Child Welfare Association of New Orleans operates a maternity service that is distinctive in that the organization provides physicians as well as nurses. These physicians receive a small per capita fee for each patient delivered. In return for this fee, the physician holds prenatal clinics to which the patient comes every two weeks up to the ninth month of pregnancy and every week thereafter, if possible. This physician delivers the patient in her home and pays not less than three post-partum visits during the first ten days after delivery. Two months after delivery the patient returns to prenatal clinic for post-partum examination by the physician who attended her.

The obstetrical nurse assists the physician at the prenatal clinic and pays not less than one prenatal visit per month in the patient's home. During the ninth month the nurse visits the patient at home once a week unless the patient is able to come to clinic.

The nurse assists the physician during delivery and remains in the home not less than one hour after delivery. Daily after care to the mother and child is given by the generalized field nurse during the post-partum period. If the baby is at all abnormal a general physical examination and subsequent medical care is given by a pediatrician supplied by the Child Welfare Association.

At the prenatal clinic, the patient receives (not later than her second visit to clinic) a complete physical examination that includes routinely a Wassermann test, a vaginal and urethral smear, a vaginal examination, internal and external measurements. Blood pressure is taken and the urinalysis made routinely at each interview with the patient both in the clinic and at home. The first specimen of urine receives complete laboratory examination. If the specimen is normal, succeeding specimens are examined only for albumin and specific gravity up to the ninth month. During the ninth month weekly specimens of urine are examined routinely and completely in the laboratory. After the fifth month care of the nipples is taught by the nurse and the condition of the nipples inspected routinely at each clinic and home visit. Varicosities, edema and other possible complications of pregnancy are watched for and treated at need. Treatment for syphilis is given both before and after delivery.

The financial eligibility of patients is determined only after the income of wage-earners has been verified by a letter or personal interview with the employer. The eligibility of the patient is determined by the per capita income of the family.

During 1928 the Child Welfare Maternity Service attended one thousand and four deliveries.

MARYLAND

BALTIMORE

Babies' Milk Fund Association

The Babies' Milk Fund Association, organized in 1904, is the infant welfare organization of Baltimore; the old title, which is retained from consideration largely of a sentimental nature, harks back to the earlier years when the whole emphasis of infant welfare work was placed on the distribution of pure milk. The Association has not distributed milk for several years past, that policy having given way to the better pedagogical principle that the mother should be taught how to properly modify and prepare her child's feeding in her own home.

The whole aim of the Association lies in the domain of preventive medicine as related to the feeding and hygiene of babies. The interest of the Association in the sick child and in the prospective mother are wholly subsidiary to the main *raison d'être* of the Association, namely, the reduction in the incidence of disease among children by home supervision, by graduate nurses, and by the advice of physicians trained in pediatrics; especially does it seek to elim-

inate dysentery and rickets and to reduce non-specific diarrhoea in infancy. The Association seeks to realize its aim by teaching rather than by propaganda.

The Association cares for babies up to six years of age. The activities of the Association include prenatal, post-natal (3 weeks to 6 years), visits of nurses in the homes, and welfare conferences with the physicians.

The Association serves an urban territory with a population of 800,000. The city is divided into districts, in which a welfare center is established whenever possible in a school building or a community center; at present we have 21 of these centers, holding 41 clinics weekly.

Each child brought to the center is examined by a physician and advice given to the mother in regard to feeding and hygiene. The monthly attendance at these conferences is approximately four thousand.

The sick child, whether seen by the nurse in the home or by a physician at the conference, is referred to the family physician or to a medical agency which by custom, location, maternal preference of special consideration seems logical for that family. This Association is not interested in building up any special medical agency and has consistently refused to treat at its own welfare clinics children who could reasonably be regarded as sick.

The Association recognizes the value of prenatal supervision and adequate obstetrical care in the reduction of infant mortality. To that end it has been willing, where no other organization would accept the responsibility to have its nurses do prenatal work for all large obstetrical services in the city. The Association with its limited personnel cannot hope or be expected to do this work in any but a very superficial manner. The prenatal work consists of visiting the homes of those patients referred to us, instructing them in their diet and general hygiene, and explaining to them the necessity for regular return visits to the dispensary at which they are registered. As soon as the child is born he is visited by one of our nurses, who investigates the home surroundings from the point of view of the infant's welfare, and the mother is given the address of the closest welfare center. When the child is brought to the center it is stripped, weighed and given a complete physical examination by a physician, who records his findings on our history form. At each subsequent visit to the center the baby is weighed and is examined at such times as the physician feels are advisable. In the intervals between visits to the welfare the nurse makes periodic visits to the home to instruct the mother in the preparation of the food and to inspect the general hygienic surroundings.

The Association receives calls for its services from all social and charitable agencies in the city, from the Health Department and from most of the medical institutions in the city.

Through the instructive and social service visits of the nurses and the weekly welfare clinics under a physician's direction, the baby is saved from becoming the victim of neglect or of ignorance of simple principles of infant feeding and general hygiene.

Mothers are encouraged and aided to carry out maternal nursing, when otherwise many of them, through ignorance or the necessity for wage earning, would institute artificial feeding.

The nurses of the Association are available to any physician or medical agency for giving nursing care to any sick child. They are at the service of any sick child whether it has been treated through an institution, by a private physician, or has been without medical assistance until the nurse secured that service for it. In the case of illness, our nurse assists the family doctor in caring for the child and in numerous cases in which there is no private physician on the case the child is taken in one of our automobiles by our nurse to one of the pediatric dispensaries for treatment. After the child is discharged by the dispensary and by the hospital (in those cases where hospital care is necessary), he is returned to us with any instructions advised as to after care.

Our staff consists of a Medical Director, an Executive Secretary, an Assistant Superintendent of Nurses, a Supervisor, and 22 staff nurses. The budget for the past year was \$58,000 (the Association is a member of the Community Fund of Baltimore). The total number of patients visited was 11,028; the total number of visits of nurses in the homes was 79,591; the total number of visits of babies to the conferences was 43,526, with 7,207 visits to them.

The Thomas Wilson Sanitarium was organized on July 1, 1923, with its aim educational and preventive work. The staff consists of a Medical Director, Superintendent of Nurses, five staff nurses, and four part-time physicians. The activities include fourteen welfare conferences held weekly at eight centers which are supervised by the Babies' Milk Fund Association, their work being of the same type. The nurses made 20,044 home visits during 1928; the total number of patients was 2,540; the total number of visits of babies to conferences was 11,715. The budget for the past year was \$16,000.

MASSACHUSETTS

BOSTON

Massachusetts Department of Public Health, Division of Child Hygiene

Massachusetts handles the greater part of its child hygiene problem through the Division of Child Hygiene in the State Department of Public Health. So far as possible the child hygiene program is correlated with that of adult hygiene, since it is realized that it is impossible to isolate the child from his home environment. The Division of Child Hygiene possesses no supervisory authority; it is an advisory body only. The child hygiene activities of the Massachusetts Department of Public Health may be set forth as follows:

The maternal and infant hygiene is in charge of a full time physician and four full time public health nurses whose work is as follows:

(a) The State is divided into four districts each in charge of one of the nurses mentioned above. It is the nurse's duty to keep in constant touch with the local nurses both municipal and private, carrying on child hygiene activities. In addition to regular visits to these local nurses in their own communities, a certain number of district conferences are held for groups of nurses. These four nurses also assist in working up and conducting our well child conferences

(b) Demonstration well child conferences are held in various parts of the State from time to time, at the request of interested organizations or boards of health. These conferences are strictly for demonstration and diagnostic purposes, no treatment whatsoever being given. Reference has always been made to the family physician and a copy of the findings of the examination is sent to him. The conferences are carried on in as simple a manner as possible, one of the objects being to show the local communities how easy it is for them to carry on similar activities.

(c) The maternal and child hygiene staff assists in gathering material and preparing papers dealing with such subjects as maternal and infant mortality.

The school hygiene work of the Division is in the hands of one full time physician assisted by the four child hygiene nurses referred to above. The lines followed by this group have to do with raising the standard of the medical and nursing service to the school children through regular visiting in the local communities and surveys of the medical and nursing service of local communities, these surveys being made at the request of the Superintendent of Schools for a given community. In addition to this, annual joint conferences are held with the State Department of Education for school physicians, school nurses, superintendents, school committee members and others interested. The closest cooperation is had by the Department of Public Health with the Department of Education, and this represents an outstanding feature of our work. The subject of physical education is handled by the State Department of Education. The school record forms which are used in the local communities are prescribed by statute through the State Department of Education, after consultation with the State Department of Public Health.

The nutrition work is carried on through a Consultant in Nutrition and four assistants. The chief nutritionist prepares educational material for distribution throughout the State, advises local communities wishing to start nutrition activities, and carries on brief courses in nutrition for such key people as public health nurses, and school teachers. The four assistant nutritionists are assigned to the underweight clinics conducted by the Division of Tuberculosis of the Massachusetts Department of Public Health. Their duties consist in talking with mothers of children brought to the clinic after the latter

have been examined by the physicians, in determining the health habits of the children, and in promoting better health habits. One of these nutritionists also has charge of the nutrition end of the follow-up work of these clinics.

The dental hygiene of the Division is in charge of a Dental Hygienist who, according to our requirements, must also have a degree in arts or science which is based in part on training in nutrition. It is the function of this Consultant in Dental Hygiene to consult with local communities wishing to improve their dental hygiene work or to start new work. She keeps in constant touch with dentists and dental hygienists working in local communities. Furthermore, she prepares educational material along the lines of dental hygiene.

In the Health Education group is one worker who prepares pictorial material and who is an artist by training. He also has charge of exhibit work including assistance to the local communities in carrying on health days or health weeks. A recent project of this group has been contact with all supervisors of drawing in the public schools of the State in a successful effort to get them to correlate the teaching of health with the teaching of drawing. A second worker assists in a general way in the promotion of all kinds of health education activity including dental hygiene, and also assists in our informational service.

The Informational Service consists of the use of all kinds of pictorial material including posters, delineascope films, motion picture films, newspaper publicity and the sending out of prenatal and postnatal letters to prospective mothers and mothers of young babies under two years of age. Furthermore, a large number of leaflets have been prepared and are in constant circulation, dealing with the various aspects of child care. The Division is responsible for the editing of the Department's quarterly bulletin, *The Commonhealth*, which has a circulation of about 5,000, and is directed towards key people such as physicians, nurses, school teachers, social workers and others who can be relied upon to carry the health information to the general public. The Division carries on, in addition to the above activities, a good-sized lecture service, preference being given to organizations whose work makes it possible for them to promote public health.

SPRINGFIELD

Springfield Nursing and Public Health Association *

We have eight Child Welfare Conferences, four are located in our Public Schools, and three in Community Houses connected with three Churches. The other is a Health Center in a rural section where we pay rent.

We have our infants and preschools coming to the same conferences, the physicians in charge of these conferences are all volunteers, coming when they can and giving us as much time as they can after their office hours which is about 3:30 P.M. This is very unsatisfactory, for quite frequently they have

emergency calls and are unable to come at all, after the nurse has kept the mother waiting for an hour or so. During the winter months when respiratory diseases are at their height we are again without physicians at our conferences. We hope to include in our Chest Budget an allowance to pay our physicians for two hours conference service each week.

Our policy is to examine all infants and preschools on their first visit to the conference. If they can afford a physician, we refer them to him if any defects are found for follow-up. If the patient cannot afford a physician we send him to the Local Out-Patient Department, or in some cases the conference physician gives his services free of charge. Our conferences are for feeding cases only, nutrition for preschools.

A printed record card form is kept of the physical examination which we give all infants and preschools who attend our conferences and repeat this every six months or a year. The weight is taken every time the child comes, height once every three months.

We gave 1,333 prenatal patients visits in their homes last year. We have a weekly prenatal clinic at one of our local Maternity Hospitals with a physician in attendance. There the blood pressure is taken plus all the observation on our prenatal record. A very complete printed Maternity Record Card form is used.

We also have an expectant Mothers Class which meets at one of our Community Houses every week where the nurse takes the blood pressure, urinalysis and weight, plus the other questions on page 2 in our maternity record. Our nurse also gives a series of eight lectures on hygiene, nutrition, and so forth.

We average about 22 deliveries a month, our fee is \$5 for five hours' service and \$1 for each succeeding hour, plus taxi charge. We give free service to about five patients every month.

FALL RIVER

Maternal and Child Welfare Commission

No new type of work was undertaken. We continued with six weekly child health clinics and six bi-weekly prenatal clinics, complemented by home visits by the nurses.

In our prenatal clinics, which are held every other week in six centers, men specializing in obstetrics only are employed. All women, not under the care of a private physician, are eligible.

Our nurses visit patients in their homes every two weeks during the first seven months, then weekly until delivery. They make their final visit on the mother six to eight weeks after delivery. At that time a post-partum examination is recommended.

The prenatal nursing visit includes the taking of temperature, pulse, respira-

tion and blood pressure; the examination of urine for albumin, reaction and specific gravity.

We utilize the prenatal letters of the Massachusetts State Department of Health for our patients. In one center we hold mothers' classes.

During the last four years we maintained a nurse at delivery service, but discontinued it this year because there was no demand for the service.

LOWELL

The Lowell Visiting Nurse Association *

The work of the Lowell Visiting Nurse Association increased during 1928 in all phases of its work. The number of delivery calls increased from 170 in 1927 to 260 in 1928. The average attendance at baby clinics increased from 20.8 in 1927 to 27.6 in 1928. The number of home visits made in 1927 was 32,150 and in 1928, 36,585. The attendance at the Mothers' Clubs doubled in 1928.

The Visiting Nurse Association employed eighteen nurses and two nurses came from the local hospitals for public health experience. Three nurses took public health summer courses, two at Teachers College, Columbia University, and one at the Massachusetts Institute of Technology. The Association carried a program of staff education, each nurse having a part in it.

An outstanding piece of work and one of which the Association is proud, was the immunization against diphtheria of 1,300 babies and preschool children. A great many of them were from the Greek section of the city. This work was done by and at the suggestion of Dr. E. O. Tabor, one of the clinic physicians.

The Association was over 60 per cent self-supporting and derived part of its income from the Community Chest Association

NEW BEDFORD

Instructive Nursing Association

Our program includes general bedside care, prenatal nursing, classes for expectant mothers and the hourly service started in March, 1928. This service has met with a good response and is growing steadily.

Our affiliation with St. Luke's Hospital Training School for Nurses has been continued, beginning with one senior pupil nurse sent to this staff for two months' experience in public health nursing and increasing to two in October, 1928.

FALMOUTH

The Falmouth Nursing Association *

The great emphasis in our health teaching is placed upon the child up to school age. We start with prenatal care. Because of the fact that there were

only 80 obstetrical cases this year, as compared with 89 of last year, fewer prenatal calls were made.

Our baby welfare work has grown considerably. The 1,633 calls shows an increase over the 1,548 calls of last year. A year ago there were about 120 babies on our records, whereas, at the present time, there are 185 under two years of age. Those up to one year we see at least once a month. After the baby is a year old, we do not visit him again until he is 18 months old and then two years, unless he is not doing well. If that is the case, we visit him as long as necessary.

To those living in outlying districts, and there are many, for our territory covers 68 square miles, home visits are made. The babies are weighed and the mothers receive instruction in the care of the child. The mothers who live near enough come into our conferences, which are held twice a month, where they have their babies weighed and may ask advice. The average number who attend these conferences in one afternoon is 16.

Last September marked the beginning of our third year in which the child welfare clinics were held. The object of the clinic is to give the mother the opportunity of having her child examined by a specialist in order to discover any defects which the child might have. She is referred back to her family physician for treatment. In November we were very fortunate in obtaining for these clinics the services of Dr. Edmund Fitzgerald, Health Commissioner of Quincy, who has had a wide and varying experience in this work.

In March the large preschool clinic was held for the children who were to enter school the following September. Each child was accompanied by a parent or guardian, in order that the greatest benefits might be derived from the clinic in the way of correction of defects.

The scope of the clinic included the weighing and measuring of each child, examinations by the doctor and dentist, and advice to the parent on the diet of the child by a nutritionist. The aim of this clinic is the discovery of defects to be later followed by correction of the same, before the child enters school.

FITCHBURG

Visiting Nurse Association

We hold three weekly well baby clinics. The babies are brought to the clinic to be weighed and the mothers to be advised by the nurse. The under-nourished babies whose parents cannot afford a doctor are seen by our clinic physician. The physical examination includes mouth, ears, chest, and extremities.

This year we held four preschool clinics at which 74 children were examined. There were five children needing no corrections; eleven required only dental care.

The following are the defects found and corrections made. The defects

were: tonsils and adenoids, 39; tuberculosis suspects, 9; orthopedic, 15; dental, 46; posture, 20; underweight, 12; minor surgery, 1. The corrections made were: 28 T. and A. cases operated (11 refused operation); 9 hilum tuberculosis suspects, 9 examined and X-rayed, 3 found negative; 5 suspects, 1 positive (treatment advised, no cooperation); 15 orthopedic patients; 3 spinal were examined and fitted to braces; 11 flat foot patients fitted to correct shoes, one refusing to be fitted to shoes, 46 patients with dental defects referred to School Clinic, 33 being treated; 20 children with poor posture and 12 underweight (home visits made).

In our prenatal work we make home visits only, instructing the expectant mother and urging her to see her physician early and regularly. We advise her to take a specimen to the physician and see to it that her blood pressure is taken regularly.

GREAT BARRINGTON

District Nurse Association *

During 1928 the work of the Visiting Nurse Association has continued along the same lines as previously. The work has been intensified rather than expanded.

We have weekly well-baby conferences, but do not have a physician in attendance. The nurse checks on any apparent questionable physical defect, and urges the mother to see her physician. Practically every mother attending the conferences has a family physician.

A steady gain in weight rather than a normal or standard weight is emphasized. Interest in the conferences increases yearly. No charge is made, as this phase of our work is counted as Public Health work, for which we receive an appropriation from the towns.

Our prenatal work consists in home visiting, including urinalyses, and by request of physician, blood pressure readings.

We have an average of fifty confinements at homes each year, and have a definite list of supplies which is explained on prenatal visits.

We have a definite plan of home visiting to infants where it is impossible for the mothers to attend conferences. We carry stork scales to the homes and keep a record of the babies' weight. Physicians frequently call upon us to weigh before and after feeding, to determine actual need of a supplementary formula.

We consider our work with the infants especially important and a service in great demand by the public.

NEWBURYPORT**Newburyport Health Center**

The Community House, 2 Harris Street, was established and endowed with funds from the William Oxnard Moseley Foundation, to provide for a more efficient administration of the various health and charitable organizations

Newburyport, like a great many cities, has in it a number of children starting life with the handicap of a frail body and poor health. With the wonderful program set forth by Doctor Chadwick, the State Ten-Year Program, and the Preventorium where the child receives expert attention and medical supervision, and our Summer Health Camps, the child has every advantage which it lacked in former years.

Within the last year, six children in this group of contacts or handicapped children have been hospitalized in Preventoria. Five have been admitted to North Reading, and one to Westfield. One child has been discharged after a year at the hospital, physically well. One was taken home against advice.

Thirteen children who might eventually reach this group, if special attention was not given to them, were given the opportunity of two months at Summer Health Camp. The highest gain was $11\frac{3}{4}$ pounds for one boy. The others gained an average of $7\frac{1}{2}$ pounds each.

Our Posture Class continues the work organized at Camp, and also cares for the child who is classified as "Poor Posture" at the State Clinic

We had 52 clinics with a total attendance of 277. These clinics have been under the supervision of Dr. Arthur C. Nason, Dr. Randolph C. Hurd, and Dr. Lincoln C. Peirce. There were 341 persons who came to the Center to be weighed. There were 291 visits to tuberculous patients, 69 of these visits requiring bedside care. There were 143 visits made to non-tuberculous patients, and 429 visits to contact children, making the total visits 863.

We had 15 new cases of tuberculosis reported during the year September, 1927, to September, 1928. Twelve were pulmonary, 2 hilum, and 1 a tuberculous knee and hip. There were during this same period 9 deaths. Three of these cases were reported as tuberculosis at death.

On May 9th the follow-up on the 10-year program, in charge of the State, was held at the Health Center. Fifteen children were reexamined.

The usual relief work has been successfully carried on by the Association, such as securing clothing, milk and eggs for patients. The Christmas for our 16 Sanatorium cases was also made very cheerful by the Association with gifts.

Our Christmas Seal Sale exceeded any year thus far in our history. The total receipts were \$1,655.53. It will be interesting to note the fact that the State attained the highest Seal Sale ever reached in Massachusetts, in 1927. An increase of \$17,000 above that of last year. There were 1,650 letters mailed from this office with the Christmas Seals.

During the months March and April an Educational Campaign on the

Early Diagnosis of Tuberculosis was started. In Newburyport the Metropolitan and John Hancock Life Insurance Companies distributed 2,000 pamphlets each on *Let Your Doctor Decide*. The Early Diagnosis Campaign is a search for that large group of people who have tuberculosis and do not know it. There are approximately 9 active tuberculosis cases for each annual death in the community, and out of every known case there are 3 unknown in a community.

Only 16 per cent of those who enter sanatoria are incipient cases; 34 per cent are moderately advanced; 50 per cent are in the advanced stages.

The Anna Jaques Hospital has made it possible for us to have a great many X-rays taken of our patients.

During the year 234 children were admitted to our Child Welfare Conference. Since our infant work began seven and one-half years ago, the total enrollment has been 1,946. One hundred and sixty-eight children were discharged. The total attendance at the 51 conferences was 1,295, averaging 25.4 per conference. During the year 998 home visits or 1,599 individual visits were made. The twenty-five cent fee totaled \$262.25, 25 cents more than last year. There were 1,049 patients who paid and 246 who were free attendants at conference.

In connection with our Baby Conference, 25 of our children graduated into school this term. They were examined during July and August, and physical defects, if any, were corrected, so that they entered school physically fit from our Well Baby Conference. (No deaths.)

In 1912, according to the Children's Bureau, U. S. Department of Labor, it is estimated 300,000 babies in the United States died during their first year; in 1926, 182,000. If the 1912 babies had had the advantages that babies now have, no doubt thousands would have been saved. We can estimate the number that would have been saved by comparing 1915, the first year for which the Census Bureau published birth statistics, with 1926, the last year for which figures are available. In 1915, of every 1,000 babies born alive in the birth registration area, 100 died before their first birthday. Thus in the birth registration area about 50,000 babies born in 1926 were saved who would have died had 1915 conditions prevailed. In 1927 the saving will be even greater than in 1926. Provisional figures indicate that only 64 out of every 1,000 infants died before their first birthday. This means a saving of approximately 60,000 infants' lives. In 1927 there were 17 deaths under one year of age in Newburyport. Seven of this number were from the surrounding towns. One died of congenital heart at 3 days; 2 died of pneumonia, 6 and 9 months, respectively; 1 malnutrition at 1 day; 1 marasmus at 6 months; 1 jaundice at 2 days.

It is rather interesting to know that the gastro-intestinal diseases which formerly were the greatest cause of infant mortality have dropped to third place as a cause of death. The respiratory diseases as represented by pneumonia ranked first as a mortality factor.

The following is the statistical report of the District Nursing Service:

During the year 3,679 home visits were made to give bedside nursing care to patients in Newburyport. This is an increase of 551 calls over that of last year. Of the number 1,610 were made by the nurses from the Anna Jaques Hospital, who receive their Home Nursing Training in this manner. There were 2,069 visits made by our District Supervisor, Miss Colman.

Number of free cases, 105, against 127 last year

Number of free visits, 1,026, against 980 last year

Cash received from paying patients, \$398.81, against \$208.90 last year

Cash received from Metropolitan Ins. Co., \$658.17... \$451.75 last year

Cash received from John Hancock Ins. Co., \$192.24... \$279.45 last year

a total of \$1,249.22, an increase of \$309.12 over that of last year. It was found necessary to increase the individual nursing charge from 80¢, the cost of a nursing visit, to 96¢. We expect the patient to pay this fee if he is able; if not, we charge what we deem a reasonable figure according to the financial ability of the patient to pay.

The total taxi bill is \$276.73 for the District Nurse

A District Nurse is so frequently more than what her title implies, a skilled trained worker who goes into many homes during the course of the day to give care to the sick and instruct the well. She is a good neighbor who is obliged to undertake a little of everything, from the building of a fire to the washing of a baby.

We had a class for "Little Mothers," children between the ages of 6 and 10, during the months of July and August. This class met once a week, the average attendance being 14. The little girls were taught simple things about the care of a baby and about personal hygiene. Any one of them can describe how a baby should spend his day.

Twenty-two children and adults, a combination of Child Welfare Patients, hilum tuberculosis and contact cases, have been referred for removal of tonsils and adenoids. Eighteen of this number have been operated on through the kind cooperation of Doctor Toppan and Doctor Peter.

In September the Health Center Nurses were asked by the Board of Health to accompany an inspector from the Boston Consumers League to the restaurants of the city. From the 22 restaurants inspected, only four met with the requirements so that they could be put on the approved list of the Boston Consumers League. The restaurants were reinspected again in June and reports of existing conditions forwarded to the Board of Health. The Health Center Nurses were reappointed as Board of Health Nurses.

It is the custom each year for the American Red Cross to have a first aid room at the Topsfield Fair, to care for any emergency which may arise among the attendants. The Health Center was represented by a nurse. The work assigned to her was very interesting. During the first four hours of service

approximately 60 persons came to the First Aid Rooms for treatment or advice. A doctor and four nurses were in attendance.

A class in Home Hygiene and Care of the Sick was given at the Anna Jaques Hospital by Miss Colman. Four diplomas were awarded.

Danvers Hospital has held an evening clinic in our rooms once in six or eight weeks during the year

The S.P.C.C. has also held meetings monthly at the Health Center.

Owing to the prevalence of scarlet fever in December, it was thought advisable to offer to parents the privilege of having their children inoculated. There were 24 children who received the inoculating doses. Dr. Hurd, Dr. Toppan, Dr. Snow, Dr. Peter and Dr. Bullard gave their services to the work.

Three joint meetings were held during the year, with the following speakers. Mr. Frank Kiernan from the Massachusetts Tuberculosis League; Miss Caroline Olin from the Speech and Readers Guild, of Boston, Dr. George Bigelow, State Commissioner of Public Health.

MICHIGAN

DETROIT

Merrill-Palmer School

The Merrill-Palmer School was established in 1920, with its chief purpose the education of young women for motherhood. Two nursery schools, accommodating about fifty children, are maintained primarily as laboratories for the teaching of and research in all phases of child care.

The School offers resident courses to young women who are senior and graduate students in a number of colleges and universities of recognized standing, where they receive full credit for the work done at the School. The greater number of the students are undergraduates, who come to the School for a quarter or a semester for this special work. Graduate students and fellows usually study at the School for a year. At present 57 students, representing about twenty institutions, are in residence. Besides the teaching and research activities carried on at the School itself, a number of community projects in parental education and home-making are carried on in Detroit and its environs.

The staff includes the director, specialists in nutrition, pediatrics, sociology, psychology, chemistry, home economics, and nursery school teaching, consultants in dental orthopedics and nutrition research, assistants in the various fields, and an office staff.

Each of the several teaching programs of the School has a four-fold purpose—the care of the children in the two nursery schools, the instruction of the students, the education of the parents of the nursery school children, and,

as far as feasible, of that part of the public interested in child care, through extension programs, consultation with the School staff, and publications. The courses offered are planned with two objects in view, *i e*, general instruction in child care and specialized instruction intended to meet the needs of the student who wishes advanced work in the physical or mental growth and development of young children, or preparation for nursery school teaching or parental education. The School also serves, for its many visitors, as a demonstration center in preschool, preparental, and parental education.

Studies on the various phases of physical and mental growth and development, preparental and parental education, and nutrition research are in progress. At the Nutrition Research Laboratories, which are conducted in cooperation with the Children's Hospital of Michigan, studies on the biological properties of human milk, prenatal metabolism, metabolism during lactation, and rickets are in progress. The result of a special five-year dental study of the growth changes of the teeth and dental arches during the preschool years was reported in the May, 1929, issue of the *Dental Cosmos*.

The community program of the School has included a number of projects in the interest of better homes and better parenthood. In the greater number of these projects the School has followed the policy of functioning primarily as a demonstration agency, with the cooperating agency taking over the project as soon as feasible. These projects include: Nursery school demonstrations, including nursery schools intended for laboratories in studying child care on the post-graduate, high school, and elementary school levels, and cooperation with the Detroit Welfare Department in setting up a nursery school for the children of working mothers. The teaching of home-making and child care to groups of girls in the public and parochial schools of Wayne County, where public funds are not available for that purpose, is another community project. Instructors for regularly organized classes in child development, credited at the city colleges, leaders for various child study groups, speakers for single meetings, and staff consultation have also been available. Until the fall of 1927, a Consultation Center, offering community child guidance service, was conducted at the School. For a number of years, the School has offered instruction in home-making to groups of girls and women from among the 67 per cent of Detroit's population that is of foreign birth or foreign-born parentage. A community study of Grosse Ile, an island in the Detroit river, has been in progress since 1924, with the object of determining the factors especially likely to influence children during the period of growth. A report of this study will be issued by the Government.

During the past two years the major efforts of the School have been in the direction of a better integration of the courses offered and the development of better programs in parental education, rather than in the initiation of new projects.

The Visiting Nurse Association of Detroit *

Last year in Detroit our Association cared for 36,000 patients, of whom half were under 14 years of age.

The program for the year was very similar to that of other years. There was the usual growth, there being 19 per cent more visits made than in 1927. Of the 186,421 visits made to these patients, 45 per cent were maternity, 39 per cent morbidity, 11 per cent clinic and health supervision, 5 per cent unprofitable calls to those who were not at home or were not located. The 11 per cent of clinic and home follow-up service is entirely work outside of the city of Detroit, as the Department of Health provides clinic service within the city.

The Visiting Nurse Association maintains child welfare centers in Royal Oak Township, in the city of Hamtramck, in Lincoln Park, and in Northville, Michigan. We are particularly interested in pointing out that our clinic centers and the field work are carried on by the same personnel. In Hamtramck, which is a busy city of 85,000 Poles, our Center is in the Tau Beta Community House. Last year the Tau Beta Association erected a new center, providing the Visiting Nurse Association with model pediatric clinic rooms. We moved into our new quarters in December and have added dental, eye, nose and throat clinics to our prenatal and child welfare clinics. The Clinic is limited to children under 14 and to the mothers of our clinic patients. Twenty-five cents admission is charged, and fees are collected for dental work from those who can pay.

Physiotherapy service, which was begun in 1927, has increased during 1928. We now have three centers where patients are brought for treatment. This saves the nurse's time, though it is necessary to make home visits in many instances. This work is done in cooperation with the Children's Hospital, and in a few instances under the supervision of private physicians.

While the Association has always offered a pay service we entered on a joint enterprise with the Detroit District Nurses Association, February, 1928, offering hourly appointment service. The Nurses' Official Registry receives all calls and fills them through the regular staff of the Visiting Nurse Association. The full 24-hour period is covered in this way. The rates are \$2 for the first hour and 50 cents for each additional half hour. This will be a popular service as soon as physicians and patients realize the advantages of buying only necessary nursing service.

Detroit has the highest birth rate of any large city in the United States, which explains the volume of maternity work. By comparing our figures with the city birth rate, we find that 16 per cent, or one out of six babies born last year, had visiting nurse care during the first few days of life.

There were 576 infant welfare clinics held under the auspices of the Association in 1928 in the city of Hamtramck and other metropolitan areas outside of Detroit. A total of 1,574 individuals under the age of 6 years was cared for—total attendance, 7,758. A physical examination includes a thorough

examination of head, chest, abdomen and extremities. Wassermann tests and urinalyses are not made in our infant welfare clinics routinely, but only when the physician feels it is necessary. Vaccination against smallpox, toxin-anti-toxin, and Schick test are given as routine

Hamtramck is the only center in which the Visiting Nurse Association conducts a prenatal clinic. A weekly clinic was held during 1928 at which 219 patients were seen. Wassermann tests, urinalyses and blood pressures are included in the routine physical examination.

In Detroit and metropolitan areas the prenatal work is limited to instructive home visits, made monthly until the eighth month, when each patient is visited bi-monthly. There were 11,641 such visits made in 1928

Tuberculosis and Health Society of Detroit and Wayne County

We conducted school diagnostic clinics in Wayne County in cooperation with the County School Commissioner's Office. This means that complete physical examinations were given. There were 47 such clinics held with a total attendance of 1,371

The Dubois Health Center in Detroit also gave school medical examinations as part of their regular work. There were 650 school children examined at their clinics

We carry on Health Educational Activities in the schools. There were 39,000 children enrolled in the Modern Health Crusade Junior and Senior groups. "Zip," the Health Teacher, was employed for imparting this form of health teaching. He gave 196 talks to 70,935 children.

We distribute health posters, literature, and so forth. There is a consultation service for teachers in organizing school health programs.

The prenatal care is handled by the Detroit Board of Health.

GRAND RAPIDS

The Clinic for Infant Feeding

The Clinic for Infant Feeding simply tries to keep Well Babies Well

In our schools "Little Mothers' League Classes," started by the late Mary Margaret Roche, supervised by the Clinic for Infant Feeding, and taught by a teacher who is a trained nurse, gives the girl her first scientific knowledge of the care and feeding of babies. This work has been going on now for something over ten years and so long enough for many of these "Little Mothers" of the school doll to be real mothers bringing their children into Clinic and telling that their work back in the 8th grade has really carried over into real life and that their textbook has become of great use in taking care of their own babies. During 1928 there were 1,031 pupils who received this instruction.

The Prenatal Clinics aim to give education for the mother's own care and

for the new baby's care. At the prenatal clinics physical examinations are made and a Kahn test taken by the clinic doctor, and any abnormal findings are reported to the hospital to which the patient is going or to her private physician. The nurse endeavors to check up as to how fully and faithfully the patient is carrying out the doctor's orders as to diet, rest, fresh air, exercise, and so forth, and to impress upon her the necessity of following these orders very carefully. There are four prenatal nurses on our staff. The "Little Folks Welfare Club," a lay group, furnish our needy patients with layettes and give volunteer service at clinics, serving cocoa, and so forth, to patients, and motor service bringing the patients into clinic and making possible the service of a physician at this clinic.

Our nurses call on all patients under the clinic supervision every two weeks up to the seventh month of pregnancy, thereafter once a week, taking blood pressure at least once a month or oftener if necessary, and making a urinalysis for each call. The nurse takes up the question of the family budget with the patient and plans with her the best way to meet the expense of the coming confinement. She sees that a physician is engaged or hospital arrangements made. Cooperating with the Junior League, we now have a hospital service for expectant mothers known as the "Junior-League-Part-Pay-Plan." This is for patients who wish to be hospitalized but cannot afford to pay the full cost for this hospital care. The cases desiring this service are submitted to the Hospital Committee of the Prenatal Clinic, all board members, which, after considering the social history, and so forth, of the patient, decide upon the amount they think the patient should pay; if the patient feels she can pay what the committee recommends, the case is submitted to the Junior League committee for approval. If passed upon favorably, the patient is notified. She must then save and pay to the Clinic as she can, before time of confinement, the amount agreed upon. When she has made full payment of her share she is given a letter which admits her to the hospital as a pay case, the Junior League assuming the remaining portion of the hospital bill.

The Clinic for Infant Feeding has a department for the collection and distribution of Extracted Mother's Milk. We get in touch with our mothers through the prenatal clinic and our first month calls. We then check up the mother's physical condition, when her necessary tests have been made. If she was delivered at home we check up with her doctor. If no tests have been taken we have our own doctor do it. We suggest that the mothers bring their babies to clinic at least once a month, and with our nurses watching the babies in their homes we guard against the mother depriving her own baby in order to sell to us. The nurses visit the homes to make sure conditions are satisfactory and also instruct each mother how to express her milk by hand and the importance of keeping the bottled milk cool and covered. We emphasize the fact that we wish only her surplus milk. Her own baby must be her first consideration. The milk is collected once a day and sterile bottles left for the

next day's supply. This Pasteurized milk is furnished on a doctor's order to the babies needing it most, sick and premature babies being cared for first, and money cannot enter into the distribution of such a life-saving commodity. During 1928 we collected and distributed 70,493½ ounces of extracted mothers' milk, furnished by 179 different mothers to 133 different babies.

For a number of years now the Clinic Nurses, at the request of the Health Department, have called on every baby born in the city. This is principally to encourage mothers in breast-feeding their babies and to increase our supply of extracted mothers' milk. We have twelve baby nurses.

The preschool children come into clinic to be weighed and measured. The Nutrition Nurse is at each station once a week to check up on these "preschoolers." Those that have not had physical examinations are directed to Central Station to the preschool nutrition clinic, where complete physical examinations are given by the physician in attendance. The nurse follows up with home calls to make sure that the doctor's recommendations are understood and makes every effort to have the necessary corrections made. She also urges the mothers to have their children vaccinated and to protect them against diphtheria with toxin-antitoxin, and the importance of fresh air, sunshine, and proper diet.

Each year in the early summer we make a survey of the children who will enter school for the first time in either September or February and concentrate on this group during the summer in an effort to have them enter school with no handicaps that can be removed.

During 1928 there were 6,230 prenatal calls; 58,425 calls on babies; 45,424 preschool calls, and 1,106 nutrition calls.

MINNESOTA

MINNEAPOLIS

State Department of Health, Division of Child Hygiene *

Prenatal letters are sent out, and a course in the hygiene of maternity and infancy is given through the Extension Division of the University of Minnesota. Classes are organized by various localities, class leaders being sent from the Division. The text used in these classes is a modification of the correspondence course and the Mothercraft Manual prepared by this Division.

The Superintendent of Public Health Nursing in the State of Minnesota is on the staff of the Division of Child Hygiene of the State Department of Health. Information as to Public Health Nursing practice and procedure within the State is furnished by the Superintendent. Regional Conference for Public Health Nurses have been arranged throughout the State by the Division of Child Hygiene, cooperating with the State Medical Society, the State Board of Control, the State Organization for Public Health Nursing, the Minnesota Public Health Association, and the American Red Cross.

The supervision of Public Health Nursing as carried on in the Indian Reservation in the State is included in the activities of the Child Hygiene Division.

The offices of the State Department of Health are in St. Paul, but the Child Hygiene Division has offices in Minneapolis in Millard Hall on the University of Minnesota Campus.

The Visiting Nurse Association of Minneapolis*

In 1928 this Association finished the twenty-seventh year of its work. By an arrangement with the University Hospital Out-Patient Department, the Visiting Nurse Association provided nursing assistance for home deliveries cared for by University Hospital doctors, as well as many cared for by private physicians. There were 4,933 visits paid to 1,297 expectant mothers, including not only the follow-up visits from clinics but also patients of private physicians when they wished for this service.

The Association has made a study of 3,882 maternity patients cared for during the past four years, with but nine deaths. This gives a maternal death rate of 2.3 as compared with 5.8 for the city at large.

Occupational therapy, a project of the Visiting Nurse Junior Board, offers treatment both in the field of mental hygiene and in that of muscle function.

Physiotherapy treatment, given by the Visiting Nurse Association and supported by the Junior League of Minneapolis, is given to children who have had poliomyelitis or other types of paralysis as well as to adults crippled by disease or accident.

A psychiatric social worker was added to the staff in 1927. With her supervision the nurses have been able to aid the mental health of patients. In doing this they received the cooperation of clinics such as the Child Guidance and also of private physicians. The mental health supervisor spent fully one-third of her time in classes or individual conferences with the staff nurses, helping them to recognize mental health problems and teaching them how to deal wisely with them. Staff nurses are also rotated for two-month periods as assistants in the mental health department.

In each of the six types of nursing service there was an increase of work in 1928, the amount varying from 11 per cent in maternity to 82 per cent in occupational therapy.

The Board has added an Education Committee to keep the members informed of recent advances in preventive medicine and public health.

Infant Welfare Society of Minneapolis*

The Infant Welfare Society of Minneapolis reports no radical changes, but a constant broadening of the scope of its activities to cover the field of mental hygiene as well as physical hygiene of each child.

The infant clinics now continue supervision until the child enters school. A complete physical examination by the pediatrician is given the child each time he returns to clinic, with careful instructions concerning feeding, hygiene, and habit training. The nurse explains in detail the pediatrician's instructions before the mother leaves the clinic. Mothers are expected to return once a month during the child's first year, once in three months during the second year and once in six months thereafter. Visiting in the homes is done as indicated by the condition of the child, the cooperation of the parents and the home environment.

In the prenatal clinics the mothers are given a complete physical examination, including pelvic measurements, Wassermann and haemoglobin tests. Smears are taken and urinalyses made, and blood pressure recorded. Mothers are expected to return to clinic once a month during the first seven months of pregnancy, once in two weeks during the eighth month, and once a week during the ninth month. Visits in the homes alternate with clinic visits.

Special clinics are held for children of preschool age who show some definite behavior problem. Each child receives a complete physical examination by the pediatrician. Hearing and vision are tested and an intelligence test is given. Problems are discussed by the mother, pediatrician and nurse, not in the presence of the child. This department has a specially trained supervisor and the nurses do intensive follow-up work in the homes with both parents. A Child's Record form sheet is kept.

As part of the general educational program letters emphasizing the value of breast feeding and the importance of regular medical supervision while the infant is well are sent to the homes of each new born baby when he reaches the ages of 2½ weeks, 5 weeks, 3 months, and 6 months.

Evening meetings for fathers alone are held about every three months. These meetings are conducted by the Medical Director and have an average attendance of 15.

The staff consists of 12 staff nurses and two general supervisors, and one prenatal supervisor; 4 staff nurses and one supervisor in the special behavior clinics; about 8 pediatricians and 5 obstetricians; a group of 30 volunteer workers for weighing and clerical help during clinic; an executive secretary (nurse) and 2 office assistants; with a Board of Directors composed of 12 women and 9 men including 4 doctors, one of whom is director of infant and preschool work and another of prenatal work.

The budget for 1928 was \$45,750 with no contribution from municipal funds.

DULUTH

Scottish Rite Infant Welfare Department

Our work has continued during the past year the same as in previous years, with the exception that we are spending a great deal more time and effort in

our Breast Milk Department Since the beginning of the fiscal year 91½ quarts of breast milk have been procured There were 52½ quarts delivered to the hospitals and 39 quarts to private families. As stated in previous reports, this milk is used in critical cases.

We have five stations where clinics are conducted Our aim is to instruct mothers in the proper care and feeding of well children. We are simply trying to teach mothers how to keep their "Well Babies Well." No treatment is given, but children in need of special medical attention are referred to their family physician. Follow-up calls are made on all babies attending clinics. The age limit is 2½ years.

Our physical examination includes general appearance, evidence of rickets (craniotabes, rib beading and flaring, enlargement of epiphysis, bow-legs, and so forth), observation of weight, complete examination of eyes, ears, mouth, chest, abdomen and extremities.

The only prenatal work we are doing is sending names to the State Board of Health for prenatal letters.

ST. PAUL

Saint Paul Baby Welfare Association

During the Summer of 1928 a survey of this organization was conducted by Miss Helen Chesley Peck, Executive Secretary of the Minneapolis Infant Welfare Society, and certain changes in policy and procedures were adopted. Many agencies touch the health field in St. Paul, and the necessity for defining our position in relation to other agencies had made itself felt. Following the Survey a definite program was agreed upon.

The membership of the Board of Directors has been doubled in number, and lay participation in Association matters has become more active.

The service is built around a program of visits of the mother and child to Conference, and visits of the nurse to the home. Well Child Care is the scope, including periodic checking of height, weight and gain; physical examination for detection of abnormalities and defects; direction for diet and habit training; education of the mother in the care of her child.

In the past year service has been extended to include children up to school age in all stations Service is available through this organization only to families who cannot afford this type of care at the office of a private physician. A nominal registration fee is asked on admission. The appointment system for attendance at Conference has been inaugurated; efforts are being made to decentralize the group and open stations nearer the homes of the patients; a considerable part of the routine Conference work has been taken over by a corps of volunteer workers whose service has been on the whole a great advantage.

In Conference, every child is seen stripped by the doctor on each visit.

Physical examinations are made at stated intervals. These include the following items: age, height, weight, average weight, development, skin glands, throat, teeth, heart, lungs, ears, genitals, hernia, rachitic signs, malformations. For immunization, laboratory tests, and so forth, patients are referred elsewhere.

In this city there are six agencies in the field interested in prenatal care. Our program takes care of a small localized foreign group, is carried on by a program of clinics and nursing visits in the home, and has a definite tie-up with the City Hospital.

The volume of work carried on during the past year is indicated by the following statistical report: the total number of individual patients cared for was 2,523; the number of cases carried over from last year was 1,546; the number of cases admitted was 977; the number discharged, 1,263; the number of active cases today is 1,387 (1,375 were children, 12 were prenatal); the number of conferences held was 515; the attendance at these conferences was 7,675; the number of home visits was 13,397; the registration on April 1, 1929, was 1,462, of these 476 are under one year, 522 are between one and two years, 466 are over two years. We are carrying approximately of all the children in the city 10 per cent of the infants under one year, 10.3 per cent of the one to two-year olds, 31 per cent of the two to five-year olds; 59 per cent of all St. Paul children of our age group

MISSISSIPPI

JACKSON

Mississippi State Board of Health *

The development of a new feature of our work, the hygiene class instruction, is one of our outstanding pieces of work

We do not operate child health clinics, but do hold child health conferences in counties where there are full-time county health departments. These conferences have also been conducted in connection with the Round-Up Campaign of the State Parent-Teacher Associations in many counties of the State. We believe the new feature of this particular phase of the work, child health conferences, is that the mothers are expressing their desire for immunization of the children against smallpox, diphtheria, and typhoid fever.

As concerns the development in prenatal care, six of our county health departments are holding prenatal conferences for the cases of midwives. The number of prenatal cases reporting has been rather gratifying when we consider that this particular phase of the work is in its infancy here.

We are in the process of making a survey of our midwife activities.

MISSOURI KANSAS CITY

Visiting Nurse Association of Kansas City

There are twelve Child Welfare or Well Baby Stations in Kansas City. Ten of these are under the auspices of other organizations, but the nurses assigned to them are members of the Visiting Nurse Association staff, the salaries (with one exception) being paid out of our budget. The two remaining stations are for colored children, the entire expense being borne by the Visiting Nurse Association. We also assign a nurse to one pediatric clinic. She is a member of our staff but her salary is paid by the organization to which she is assigned.

All our Child Welfare and Well Children's Stations care for the infant and preschool child, and a complete physical examination is made at the time of the first visit of each child.

At four of the Child Welfare Stations there are prenatal clinics as well, with the same nurse following the cases in the home. Besides these nurses, we have one nurse on our staff who devotes all her time to prenatal work, making nursing and instructive visits in the home. If a patient is going to the hospital for delivery the child welfare and prenatal nurses carry the case right up to the time of delivery. Otherwise at the end of the eighth month the patient is turned over to the regular district nurse, who makes weekly visits in the home during the ninth month and cares for mother and baby after delivery. A record card form is used at these Stations.

ST. LOUIS

Visiting Nurse Association of St. Louis

Our prenatal program is confined to visits in the home entirely, and we have reason to feel that this service includes that which is given in other cities. We have a very close tie-up with the Municipal Service. Except the occasional prenatal clinic connected with the various hospitals, the prenatal clinics are an activity of the Department of Health.

The infant welfare work done by this association is confined to the first month of life. All our infants are carried a full calendar month and then, if in good condition, automatically transferred to the Municipal Infant Welfare Clinics, where they are carried until of school age.

Municipal Visiting Nurses

We have ten Health Centers in indicated locations in St. Louis.

In these Centers, 23 Child Welfare Conferences are held each week for the well baby, where its health is supervised by recognized pediatricians. Our age

group consists of the infant to five years of age, as at five years our children may enter school and are then supervised by the school nurses

In St. Louis, in 1928, there were 14,865 births, and of this number 5,491 were contacted by the Municipal Visiting Nurses, and of this number 4,045 availed themselves of the services in these Child Welfare Centers. Each child receives a careful examination on registering and a careful check-up is made every three months after this time. The examination includes weight, measurements, and complete physical examination. On each visit to the Center the child is weighed and his temperature is taken. An effort is made to have each child that attends a conference immunized against diphtheria and vaccinated against smallpox by the time it is one year of age.

We have a graduation from the infant group at the age of two years to the preschool group, and the child is graded carefully by the pediatrician upon physical development, cooperation of the mother, following the pediatrician's and nurse's instructions, and regularity of attendance. Graduation exercises are held, a diploma and, incidentally, a bouquet, is given to each of the graduates and a picture is taken by Centers. To be eligible for graduation, the graduate must have been immunized against diphtheria and successfully vaccinated against smallpox. We have found the plan of graduation quite stimulating and interesting to our groups.

Our infant and preschool conferences are held at the same time. While we do take children at any age up to five years of age, we do not make an effort to interest the mother of the preschool child who has not been brought to the Center as an infant. This is because of lack of personnel. We feel that in making a choice we can do a better piece of work by interesting the mother of the infant and holding it through the five years, and are placing our efforts in that direction. We have an active case load of 8,000 infants and children.

In four of our ten Health Centers we hold seven Prenatal Conferences each week. Recognized obstetricians serve in each of these Conferences. On registering, a careful medical and social history is made. We have a prenatal record form.

In addition to the usual routine of temperature, pulse, respiration, height, weight, blood pressure reading, a urinalysis and blood test is made on each patient, and anti-luetic treatment is given in our Municipal Venereal Disease Clinic if indicated. The obstetrical physical examination includes examination of the heart, lungs, thyroid, teeth, breasts, and pelvic measurements. All patients with abnormal conditions are referred to the proper source for the necessary treatment. Mothers' classes are held at the time of attendance at Conference and are fitted in with the preliminary routine before the arrival of the obstetrician. We follow the New York Maternity Center and East Harlem Street Center routine in our classes. In 1928, 1,465 new cases received care in our Prenatal Conferences in addition to the undelivered cases carried over from the previous year, which amounted to a total of 1,958 cases

All patients are referred to a satisfactory agency for delivery, *i.e.*, Hospital or Out-Patient Delivery Service, from the two Schools of Medicine in St. Louis, or to the private physicians, as quite a few private physicians' cases attend our conferences for prenatal service. In 1928, 78 per cent of our cases were delivered by private physicians and we are very glad to cooperate with these physicians in sending a complete summary of our findings to the physicians before the expected date of delivery. A complete summary is also sent to the organization or agency who is to give delivery service. If the patient plans to be delivered in the home, she is referred to the Visiting Nurse Association, which is our non-official nursing organization, who gives post-partum care. Post-natal examination is given to our patients in our Centers six weeks after delivery. Our percentage of post-natal examinations for the year of 1928 was 46.5 per cent of all cases delivered. If a patient is in good condition on post-natal examination, the case is closed; if not, corrective work through exercises is given under supervision. If necessary, patients are later referred for such surgical corrective work as may be found necessary.

All cases attending our conferences are visited in the homes by the Municipal Visiting Nurses.

We have a staff of graduate nurses as follows: one superintendent, two special supervisors, six assistant supervisors, and sixty-eight field nurses, making a total of 77.

A physical examination sheet form is used after the child is nine months old in conjunction with a regular child's record form which is also kept.

NEBRASKA

OMAHA

The Visiting Nurse Association of Omaha *

This Association maintains six weekly Well Baby Conferences. The members of Omaha Junior League donated 770 hours of service at the 352 Conferences held in 1928.

In the Nutrition Classes held twice a week for children from two to fourteen years of age, the children receive a complete physical examination by a specialist. For correction of physical defects, the children are referred to clinics at our Medical School. The behavior difficulties and other causes of malnutrition are studied in these classes. A nutritionist with special training advises the staff and supervises the carrying out of treatment prescribed by the physician.

Mothers attending Prenatal Clinics conducted by our Medical Schools are visited in the homes by visiting nurses. A written report is mailed to the clinic.

Special emphasis is placed on children who are tuberculosis contacts.

The Association does the home visiting for the Orthopedic Clinics and Hattie B. Monroe Home for Cripples. The Rotary Club has been a great aid for more effective work by the donation of two cars.

The nurses are assisting in the toxin-antitoxin movement

NEW HAMPSHIRE

MANCHESTER

City Health Department and the District Nursing Association *

A cooperative plan of child welfare has been perfected in this city

The District Nursing Association is doing prenatal work and this includes clinics, mothers classes, and nursing visits in the home. On the tenth day after the birth of the child the case is reported to this department. The child is then carried until two years of age. This care includes clinic service and home visits. When the child is two years of age it is again referred to the District Nursing Association which does the necessary follow-up until the child enters school. This preschool work includes clinics, nursing visits, and necessary medical and surgical treatment. When the child enters school it once more comes under direct charge of this department. The school medical inspection service includes the usual care belonging to such service.

NEW JERSEY

NEWARK

New Jersey Tuberculosis League *

Every one of New Jersey's twenty-one counties has an active tuberculosis or health organization affiliated with the State Tuberculosis League with central headquarters and one or more full time workers in charge. The more populous counties maintain large staffs including nurses and child health directors. Because the organization is on an efficient state-wide basis, the county offices are everywhere recognized as the logical center for the conduct of health and welfare work.

From the pioneer days of more than twenty years ago the fundamental importance of child health work has been recognized. The net work of clinics now covering the state, maintained through the cooperation of the State Department of Institutions and Agencies, sanatoria, health departments and tuberculosis associations give much time to the examination of children and work in close cooperation with school medical directors and nurses. Preventoria of the most modern type are available at Glen Gardner and Farmingdale and in several of the counties for the use of pre-tuberculous and contact

child patients Summer nutrition camps where a careful regimen of rest, diet and exercise is maintained are used by about 2,000 children each year. The tuberculosis associations have taken the initiative in the organization of these camps, but have the generous cooperation of service clubs and other organizations. In some instances official appropriations are secured from counties and municipalities.

The child health education program has been a gradual evolutionary process. In the beginning, the Modern Health Crusade was employed as a convenient introductory device. It is still used by a few counties apparently with satisfactory results. In most places, however, it was followed by nutrition classes introduced into the State under the auspices of the Tuberculosis League by Dr. William R. P. Emerson. These served their purpose and in their turn have been superseded by a more general type of nutrition program, including weighing and measuring, distribution of weight cards, and so forth.

Today the most progressive educational programs endeavor to make a thorough health examination by a competent school medical inspector, the cornerstone of a health education program incorporated as a fundamental in the school curriculum. The program of today aims to establish a safe school environment with sanitary surroundings, properly enforced quarantine and protection against preventable communicable disease. The establishment of sound health practices becomes an objective in all courses. This policy has been incorporated in the official program of the State Board of Education, and under the direction of the recently-appointed director of Health and Physical Education, Dr. Allen G. Ireland, is now most emphatically stressed.

The New Jersey Tuberculosis League through its affiliated organizations furnishes material, suggestions for programs, and health teaching devices. A mimeographed booklet, the *Beanstalk*, containing health stories, projects, and so forth, goes to 10,000 teachers each month. Much care and thought is given to the preparation of this sheet and only material of a good standard of literary and artistic merit is used. The Child Health Director employed by the League goes to the counties in an advisory capacity. She also serves as a lecturer on the staff of the State Parent-Teachers' Association, which is intensively organized throughout the state, and conducts a successful summer round-up of preschool children each year.

A demonstration survey of a New Jersey High School was carried out last year and will be used as a basis for a high school health program. Much publicity was given throughout the state to this subject and its importance has been recognized. The program was endorsed by the Department of Public Instruction and the State Parent-Teachers' Association. The official school health education program stresses the necessity of greater care of the boy and girl of high school age, and altogether the situation for the coming school year appears most favorable.

ORANGE

The Diet Kitchen of the Oranges

When the baby is four weeks old (until that time he is carried by the Visiting Nurses Association) he is turned over to us, and we carry him until he is of school age.

The Diet Kitchen maintains three Welfare Stations for babies one month to one year, and the preschool child one year to school age. A doctor is in attendance one hour at each weighing station weekly. Registered nurses are in charge of the Welfare Stations in the districts in which they visit. Volunteer clerical workers work on history cards and the record book.

The records of all babies' births in the respective districts are obtained from the Health Department. A record card is made out for each child and there is intensive follow-up work in the home to urge attendance at Welfare Stations to receive a physical examination by the doctor. All cases not coming to the Welfare Stations are carried as Home Supervision Cases. All cases coming to the clinic are known as Clinic Supervision Cases. At the age of one year the baby becomes a preschool child and is urged to report for the year-old birthday examination. A record card is kept. If he comes in during the month that he is a year old he is a Clinic Preschool Child, but if he fails to report he is carried as a Home Supervision Preschool Child. Our aim is to have all our cases under Clinic Supervision which gives us the physical findings of each case. The nurses can then follow up in the home and urge the correction of all physical defects. So when the child reports to school, he goes 100 per cent physically fit and when he is found 100 per cent physically fit by our doctor, he receives a "Blue Ribbon."

Our greatest preventive measure in our preschool clinic is to have all our cases receive toxin-antitoxin inoculations and in six months to receive the Schick test to see if they are immune.

Nurses visit in the homes, teaching the mothers how to modify milk according to the doctor's orders and instructing them in diet and home sanitation. The general welfare of the entire family is considered, cooperating with all organizations affiliated in the work.

In connection with the baby and child welfare work we have a "Little Mothers" Class of girls from eleven to thirteen who receive an intensive course in home sanitation, personal hygiene and general care of the baby and preschool child, thus preparing the girls for practical motherhood and enabling them to carry the message into the homes, especially of the foreign born. This course covers a period of six months and girls qualified are graduated, and diplomas given.

PLAINFIELD

Visiting Nurse Association of Plainfield and North Plainfield *

The Child Health Centers, including infant and preschool, are distributed largely according to school districts and are held in the school buildings. Open once a week for two hours. Physicians' services are voluntary.

The physical examinations are not standardized and no definite routine is followed.

Consultation of families with the nurse is very successful. Children's Bureau educational literature is used.

There were ten Stations in 1928 with an average attendance of 1,349.

Preschool consultations were confined to yearly "drive" during May. With the assistance of the school nurses in Plainfield, an effort is made to get into touch with all children who will enter school the next fall.

The examination at this time is complete. In 1928, 444 children were examined, 321 adults accompanying children.

Prenatal Care includes nursing visits in the home, during first seven months of pregnancy, once a month. During 8th and 9th months, twice a month, unless there is some indication that the case should be visited more frequently.

In home visits the importance of visiting physician or hospital prenatal clinic is particularly stressed.

In 1928 there were 223 prenatal cases carried and 261 post-partum cases that were not reported during pregnancy.

NEW YORK

ALBANY

State Department of Health

Washington County has been the subject of a demonstration including prenatal nursing, prenatal clinics at strategic points, and educational group work.

The special demonstration mother and child hygiene station and teaching center in Fulton has been carried on with progressively good effect and its facilities for teaching have been much more fully developed. Thirty nurses from different parts of the state have gone to Fulton to learn the standard methods of conducting child health work as approved by this Division.

At the request of the St. Lawrence County Medical Society, a nurse was detailed to the city of Ogdensburg to carry on a breast-feeding campaign, taking in the cases born in Ogdensburg, including those hospital cases delivered in Ogdensburg hospitals but residing in St. Lawrence County outside of Ogdensburg. This work was carried on with less cooperation from the profession

than had been anticipated, although the results of the campaign have been very much worth while.

The new outlines for group instruction cover the ordinary health problems of the average family and the classes have been changed in name from Mothers' Health Clubs to Family Health Conferences. During the year classes have been conducted in 112 communities (in 9 by local nurses) in 18 counties.

In an attempt to reach some of the foreign-born mothers, a Polish-speaking nurse was employed in organizing and teaching Polish groups, using the family health conference material but carrying on the teaching by means of demonstration and moving pictures as much as possible. This work has been very well received in most of the communities where she has had opportunity to teach and has also shown better ways to preliminary organization in connection with general group instruction. The Polish clergy, the fraternal groups and church societies have been particularly helpful in furthering this work, and a successful course in one community has generally paved the way for opportunities in neighboring places.

Educational courses for nurses in maternity and infancy have been continued to prepare the nurses for teaching their own groups, and the family health conferences outlines have been elucidated to them and demonstration classes taught for this purpose. Courses were held during 1928 in eight communities.

The study of maternal mortality as to geographic distribution has been compiled, at the request of this Division, by Dr DePorte of the Vital Statistics Division, covering the five-year period 1921-25, thus giving us two study periods for contrast, one prepared by the late Dr Eichel for the period 1916-20 and the other as aforesaid, 1921-25. This study has been of great assistance in bringing to public attention the great need for more energetic promotion of the maternity phase of the child hygiene work. It is shown that while there has been but little gain in the reduction of maternal mortality in the state as a whole, there has been a reduction of 36 per cent in total rural area, while in certain rural areas still greater gain is shown. It has shown, too, that there has been an increase in the rates in urban communities, particularly where there has been a high incidence of hospitalization.

As previously stated, questionnaires have been sent to practicing physicians during the past three or four years asking for additional information regarding maternal deaths occurring in their practices. The responses to these questionnaires had been increasingly satisfactory so that we have on hand now for purposes of study about 3,500 cases. The information derived from this material has greatly enriched our knowledge regarding maternal deaths, but the factors reported are of such complex nature that it has entailed a statistical study of much greater proportions than was at first realized would be necessary. It was hoped that this study would be completed by July first of 1929 or at least ready for final analysis at that time.

A handbook of procedures as developed thus far by the Division in its promotion of our maternity and infancy programs has been completed and is now available on request for public health nurses and other health workers.

Three hundred and twenty-six prenatal consultations were held in 34 communities on a monthly basis (including one demonstration consultation in Geneseo), with a total attendance of 2,309. One clinic (Corning) has been turned over to the local community.

Opportunity has been given in two instances of establishing prenatal clinics in connection with hospitals, one at Saratoga Springs and the other at Dobbs Ferry. It is possible that during the coming year another may be so arranged in connection with the new hospital at Glen Cove. An interesting local development in connection with prenatal clinics has been the work started in Dutchess County under the auspices of the Vassar Brothers Hospital and the local Tuberculosis Association. Under this new plan the hospital offers a flat rate for hospital delivery and service provided the patient or the patient's physician presents documentary evidence of her having received adequate prenatal care. In cooperation with this hospital and others in the county, local clinics are now being carried on, and to further support the work the local Tuberculosis Association has furnished a specialized prenatal nurse. While this is an independent enterprise, it is in part a response to the needs of the county as set forth by Division representatives in their general work of promotion of maternity and infancy.

The prenatal clinics in the demonstration area in Washington County have thus far been very successful, and it is hoped that other centers may be established so that there is a more or less complete clinical and nursing service available for the residents of the county by the end of 1929. Two of the Division staff nurses are detailed to Washington County and work with the local nurses in finding the cases and in serving them prenatally.

In October we lost from the children's health consultation staff, Dr. Worthington, and during the remainder of the current year have not been able to fill her place, so that many of the consultations have been scheduled with but one physician as examiner. The work of the dental hygienist has continued and we have been able through the Commission of the Blind from time to time to have the services of a special examiner for children's eyes. There were 216 consultations in 129 communities, 23 counties, 11 district state health officers' districts, and 4,809 children were examined. The dental hygienist made 3,293 dental examinations, 3,166 children received dental prophylaxis, 1,598 were referred to the family dentist for attention to dental defects. There were disclosed in these examinations 7,759 cavities and 914 roots and abscesses.

The plans for work in connection with children entering school in the fall were put under way in the spring in Dr. Ball's district, but did not go particularly well because of lack of understanding and cooperation on the part of school officials. In the fall of this year this work has made great headway

in connection with some of the parochial schools, particularly in Oneonta and Albany. Where the organization work has been carried on by the organized Catholic women's groups the consultations have been very successful.

"Type C" children's health consultations were carried on as follows:

County	Consultations	Children Examined
Allegany	5	99
Chautauqua	11	368
Chenango	11	185
Franklin	16	269
Jefferson	20	329
Lewis	9	145
Niagara	4	119
Ontario	21	465
Sullivan	9	242
St Lawrence	15	251
Yates	11	159
	<hr/> 132	<hr/> 2,631

For which purpose Sheppard-Towner funds have been used for payment of the local examiners

In the matter of midwife regulation, it will be remembered that during 1927 monthly reporting was inaugurated so that we might know which of the midwives were actively practicing and how extensively. These monthly reports have been very valuable in showing the above facts and also have been made in many instances the basis for a demand to cease practicing entirely so that with the elimination of the inactive ones the present list of midwives (306) represents those who are engaged in the work at the present time. There has been one revocation of license and one refusal to renew license. On one case a term of imprisonment has been imposed.

The licensing of boarding homes for children has been carried on in the usual way, and although it was hoped that this work might be transferred by legislative action to the Board of Charities, it is still with us and probably will be for some time to come. It is interesting to know, however, that when we started two years ago to make an actual record of every boarding home known to us the number was 2,100, whereas at the end of 1928 the total number on record with this Division of unincorporated boarding homes amounts to some 4,000 odd. A register of incoming and outgoing cases, with pertinent facts concerning each, has been furnished by the Division to a limited number of homes.

An earnest effort has been made during the year to increase our knowledge of places which were being conducted as unincorporated maternity homes or

hospitals, and we now have on file records of 171 hospitals or homes which are used for maternity cases. During the year Chapter VIII of the Sanitary Code was revised by the Public Health Council to make provision for the supervision of unincorporated maternity hospitals or homes. In accordance with this vested authority a set of rules and regulations was formulated for the conduct of these homes, together with minimum standards of equipment. A standard register will be provided for the use of these homes in 1929.

The Nutrition Service has comprised the following projects. Classes with graduate nurses in Ogdensburg, Poughkeepsie and Watertown. Classes with housewives in Setauket, Lyons, Milton, Waterloo, Seneca Falls, Clyde, Medusa, Westerlo and Oswego. Instruction to nurses and doctors. Work on baby's travel kitchenette and exhibit material for fairs. Preparation and delivery of two radio talks and material for others. Cooperation with Dr. Andrus of the State Department of Education in planning a handbook for parents of the pre-school child. Editing a vitamin chart and replying to many inquiries on the subject. Institution diet work in Batavia School for the Blind, advising changes in dietary and explaining the plan to both the staff and school members. Work with office employees and others in the Capitol frequently referred by the doctors and nurses for dietary advice. Studies of revision of Division literature. Sixty-five lectures to organized groups, outside of regular class work.

From the Division of Literature there have been distributed upon request 219,334 pieces of state literature, 46,948 federal pamphlets and 7,555 pieces of miscellaneous literature purchased for use in the nutrition classes and family health conferences, children's consultations, etc., have been sent out.

There were 13,842 pieces of first class mail received and 34,472 sent out.

BROOKLYN

Visiting Nurse Association of Brooklyn *

We have one Well Baby Conference with a physician, nurse and other attendants at 1119 E 95th Street. The physician conducts the examinations of the babies and is taking an active part at present in the toxin-antitoxin campaign. In another Well Baby Conference under the auspices of the Flatbush Boys' Club at 2245 Bedford Avenue, we supply the nurse and have an active part in the conduct of the conference. Both conferences are open to infants under two years.

Our entire nursing staff is engaged in prenatal nursing in the homes as part of a generalized program. In the Long Island College Hospital Prenatal Clinic, one of our nurses teaches the patients individually and gives group demonstrations in preparations for delivery twice a week.

BUFFALO**Visiting Nurse Association**

The Association is responsible for Public Health Nursing in twenty-two Child Health Centers where children are admitted up to school age. The field work is accomplished under the direction of clinic physicians or for private physicians if they so desire.

Little Mothers' Leagues have been organized in four of the centers.

The Association is responsible for the nursing work in three prenatal clinics. Field work is done for the patients attending the clinics and under instruction of the clinic physicians, and also for private physicians when requested. The prenatal visit includes nursing work, demonstration visits and distribution of literature.

NEW YORK CITY**New York Association for Improving the Condition of the Poor ***

Through its eighty-five years, the New York Association for Improving the Condition of the Poor has been primarily a family welfare agency. During its last fiscal year financial aid, health care, and friendly counsel were given 7,345 families. Service was given in 23,840 other families for whom the Association did not need to assume responsibility for continued care. In these families, as well as in families served during other years, the health service given the children has been the foundation of all efforts to build better citizens.

The Association's child health service begins with prenatal care and instruction by A.I.C.P. nurses in the homes and in two mothers' classes, one at Columbus Hill Health Center, the other at New York Dispensary for the mothers of Mulberry Health Center families. Postnatal care and instruction on the care of the new baby are given several hundred mothers each year at Caroline Rest, as well as in the homes.

A physical examination for each member of every family is routine A.I.C.P. procedure as soon as the emergent need in the family is met. Allowance families have a yearly check-up. Every effort is made to have all correctable defects corrected and to have necessary dental work done for every member of every family under A.I.C.P. care. Arrangements are made for the care of all illness in families. Cases of malnutrition are referred to a nutrition worker. The nutrition service of the A.I.C.P. estimates the lowest allowance upon which it is safe for any family to try to maintain health. At the same time it gives advice as to the best use of the money available. In the nutrition clinics this year the workers have been securing good results through the use of a new score card, which helps the mother keep a definite goal in mind. When convalescent care is needed it is arranged for, at the beginning of A.I.C.P.

work with a family partly for its educational benefit. Suitable hospital care is secured for those ill with tuberculosis, and children in tuberculous families are given intensive health supervision and care. The country outing work of the Association grows in importance each year. It is a combination of convalescent care and of preventive health work.

All A.I.C.P. health work has as its objects: putting each member of the family in the best physical condition possible for that person, giving the parents and older children an intelligent understanding of health safeguards and practices, raising the whole standard of living in the family. While this child health program means constant work with and through the city's hospitals and clinics, the Association is conducting a limited number of Centers and Clinics where there seems special need to supplement existing facilities.

Mulberry Health Center, situated in the poorest and most congested Italian district of the city, is the only agency attempting to give a complete preschool educational health service in that district. Through a free preschool health examination clinic at the Center and through pay clinics at New York Dispensary, Mulberry endeavors to secure an annual health examination for every preschool child, and, through the follow-up work of Mulberry Health Center nurses, the correction of all correctable defects before the child enters school. Development of a school nutrition dental program and continuance of its two-year anti-rachitic program have been important features of Mulberry's work this last year.

Between October 1, 1927, and May 31, 1929, Mulberry nurses visited for a varying period of time 1,194 babies two years old and under, or practically all the babies of this age group in that district. The names were secured from birth records through the courtesy of the Department of Health. Thirty-nine per cent of these babies have been carried through two cod liver oil and one sunbath program; 9 per cent, through two cod liver oil programs; 9 per cent, through one cod liver oil and one sunbath program; 42.2 per cent, through one cod liver oil program. The cod liver oil program extends over eight months; the supervised sunbath program, over four months. During the cod liver oil program, Mulberry nurses visit every baby at regular intervals, urging the use of vitamin tested cod liver oil and checking on the brand and quantity used. During the summer the method of giving sunbaths is demonstrated to groups of mothers on tenement roofs, and the babies followed up at regular intervals to check the degree of tanning.

Columbus Hill Health Center, with a staff of five colored nurses, and one nutritionist, is giving prenatal care and instruction through visits in the homes and mothers' classes to over 90 per cent of all expectant mothers in a congested neighborhood, of extreme poverty, of 10,000 colored people. Each preschool child is given an annual health examination, and follow-up and supervision are provided. The development of this program has meant that, in this area perhaps more nearly than in any other population group in the city, an

intensive public health service reaches practically all expectant mothers, young infants and preschool children. Children's examination record card forms are used.

The Committee for the Prevention and Relief of Tuberculosis is now operating four medical clinics, especially for children from tuberculous families, for those who are malnourished, and for young business girls of limited income. The Committee has increased its facilities for both prophylactic and corrective care of the teeth until it is now operating nine full time units. Educational nutrition work is carried on in connection with all these clinics, and several new projects have been developed during the year aiming to bring to local neighborhoods food and health teaching in new and attractive form. During the year a wading pool was added to the equipment of the Chelsea Day Nursery, the Committee's day tuberculosis preventorium, transforming a cheerless courtyard into a fairyland of health and fun.

The Association's Mental Hygiene Clinic is steadily proving the vital importance of such service in any well-rounded program of child health in the family welfare field. The Clinic has added during the year to its service to individuals help in the training of family visitors.

The Tuberculosis Committee at the Houston House and Bellevue-Yorkville medical clinics uses a preschool record card form.

Henry Street Visiting Nurse Service

The Henry Street Visiting Nurse Service conducts a generalized nursing service in Manhattan and the Bronx (Staten Island, or the Borough of Richmond, developed a strong Board during its connection with Henry Street and became a separate organization on January 1, 1929.)

During 1928 the Nursing Service attended 64,402 patients, making a total of 434,103 visits. In the various Centers of the organization Well Baby, Preschool Conferences, and Mothers' Clubs are carried on, with an attendance for 1928 of 23,931.

In cooperation with the East Harlem Nursing and Health Service (which is part of the Henry Street work) nutrition workers carried on a nutrition program in connection with the preschool clinics of two Henry Street Centers.

In the Nursing Center at the Henry Street Settlement a Preschool Clinic was opened during the past year and special health work carried on in connection with all the Settlement children.

The Mental Hygiene Supervisor who had been carried as an experiment by the National Committee on Mental Hygiene since 1927 was taken over by the Henry Street Settlement at the end of 1928. The report for the year shows that the mental hygiene work had increased 75 per cent, the nurses having handled over 700 cases. An analysis of 469 closed cases shows the following age groups: 1 to 5 years, 113; 5 to 12 years, 191; 12 to 16 years, 44; over 16 years, 121.

In the fall of 1928 the Health Department opened its Baby Station (for-

merly carried at 74th Street) in the East 79th Street Neighborhood House. This neighborhood house has now become established as a health center in the community with special conferences for prenatal patients, well babies and preschool children. A delivery service is provided for this area also. Hence, through the joint program of the Health Department and the Henry Street Visiting Nurse Service all types of service are provided for the community from the prenatal period through school age.

During the year 1928 the Appointment Service, or Hourly Nursing, was extended to meet the needs of many patients who do not wish a full time nurse but who need a nurse at an appointed time.

The Nursing Service was approximately 42 per cent self-supporting in 1928.

Approximately one-half of the visits made by the Henry Street Visiting Nurse Service are to maternity patients. More than 11,000 mothers came under care during the past year and 160,000 visits were made to these cases. Many of the patients receive care in the prenatal and post-partum periods; some in the post-partum period only and some on their return from delivery in the hospital. This last group find themselves in great need often of advice and help in taking care of the new-born baby. The nurse has here an excellent opportunity to teach the mother proper care of herself and proper health habits for the baby. When the mother is delivered in the home, the nurse gives daily care to mother and baby and instructs the family as to the care in her absence. While the maternity service provided for the boroughs of Manhattan and the Bronx includes prenatal and post-partum care, thus far it has only been possible to offer a 24-hour delivery service to a limited area in Manhattan. During the past year nurses attended 1,222 confinements.

The nurse has a unique opportunity in these various situations to assist materially in the reduction of the maternal and infant death rates. During her frequent visits she detects deviations from the normal and immediately reports them to the physician in charge.

A study over a six-year period shows the following maternal death rates for the service at Henry Street:

MATERNAL DEATHS			
Year	Live Births	Number	Rate per 1,000 Live Births
1923	9450	13	1.3
1924	8993	8	0.8
1925	7982	17	2.1
1926	8430	14	1.6
1927	9511	8	0.8
1928	9522	13	1.3
Total, 6 years, 53,888		73	<div style="display: inline-block; vertical-align: middle;"> <div style="display: inline-block; vertical-align: middle;"> <div style="display: inline-block; vertical-align: middle;">including</div> <div style="display: inline-block; vertical-align: middle;">hospital</div> <div style="display: inline-block; vertical-align: middle;">deaths</div> </div> <div style="display: inline-block; vertical-align: middle; font-size: 2em;">}</div> </div>

The above numbers do not include such deaths as occurred when the nurse had dismissed the patients to hospitals, and for this reason may be considered unduly favorable when compared with the city rates for the same period. In 1928 the cases dismissed to hospitals were followed up and from a number of 9,522 live births, 26 maternal deaths occurred, including 13 deaths in hospitals. This increased the rate to 27, which is still a low rate, as witnessed by the city figures and those for the United States.

The East Harlem Nursing and Health Service

A Health Unit of

THE HENRY STREET VISITING NURSE SERVICE, THE ASSOCIATION FOR IMPROVING THE CONDITION OF THE POOR, THE MATERNITY CENTER ASSOCIATION, AND ST. TIMOTHY'S LEAGUE

With the beginning of its last fiscal year, The East Harlem Nursing and Health Demonstration was incorporated as the East Harlem Nursing and Health Service, and started on a second period of cooperative participation in the support of a unit of health work, committed to experimentation, research, and education. Five years of intensive service in a limited section of the East Harlem district had opened up possibilities for further practical study, and had provided a field for the training of advanced public health nursing students and nutrition workers

Three major projects were undertaken in 1928. The first was the extension of the nursing and health program over the whole of the East Harlem district, with a population estimated July 1, 1927, as 88,761, whereas the population of the original demonstration area on this date was estimated as 34,692. The second project undertaken in 1928 was the development of the teaching service in cooperation with the Department of Nursing Education of Teachers College, Columbia University. The third was the preparation of a series of service reports covering the five-year demonstration period.

The community program reached 6,281 individuals in 2,788 families in 1928. Field visits and attendance at center activities—medical, nursing and nutrition conferences, health classes, and parents' clubs totaled 47,811. The maternity service reached 1,067 mothers during some period of pregnancy. This number is 50.5 per cent of the total live births in 1928. In the infant service, 1,060 infants under one year and 655 children between one and two years were enrolled for health supervision. Seventeen hundred and twenty-six preschool and 1,241 school children were also registered. The total enrollment for sickness care was 1,390, classified as follows: 141 cases under one year of age; 134 between one and two years; 397 preschool children; 228 school children, and 490 adults. Field visits for sickness care numbered 6,758; for health supervision 20,760.

The student enrollment for the year was 87. Fifty-nine students came from 13 states in this country and 28 came from 16 foreign countries. The average length of stay for all students was 37 weeks. In addition to Teachers College, which enrolled 35 students, there were 29 sent by the Rockefeller Foundation and 23 who came from various service agencies throughout the country.

Four reports have been printed of the special services—maternity, infant, preschool, and morbidity, covering the five-year demonstration period.

The New York Diet Kitchen Association—Children's Health Service *

This Association carries on its Children's Health Service in assigned districts in which are situated the six health stations or branches. These serve as centers in which babies and little children of the districts are registered and examined, and to which they return regularly for the health supervision given by the doctors and nurses, while the mothers are taught the proper care of their children and themselves and are given help with all family problems. In these centers special instruction in nutrition is furnished and posture training is also provided.

Closely related to the activities at the centers is the field service of the staff, whose members, including the nutritionist, frequently visit the homes of the districts, not only for follow-up work with the children under care and to teach and show the mothers how to carry out the instructions given at the stations, but also to help with the family questions of budget, sickness, unemployment and unsanitary conditions.

During the year 1928 special efforts were made to extend the preventive work among babies and children up to six years by inoculating a larger number of children against diphtheria, and also to improve and enlarge the scope of the health examinations. In all cases requiring expert diagnosis, such help is secured through cooperative relations with various dispensaries and clinics equipped to give this service. Through similar cooperation corrections of defects are obtained and treatment given to the children under care of the Association.

A model set of clothing for children from one to five years was planned with expert advice and adopted as a standard by the Association in 1928. As many requests have been received for sets, this measure seems to have met a need of those working with little children. Sets of clothing or poster copies of same have been already distributed to many towns and cities of the United States and samples have been sent to such distant places as Jerusalem and Japan.

Two forms are used in all our centers: the record card for the preschool child and sheets for nurses' notes on home visits, both of which were prepared by a committee of the Children's Welfare Federation on which our Association was represented. A posture sheet is also used for posture examination.

Children's Welfare Federation *

The Committee on Maternity Care of the Children's Welfare Federation, with the assistance of the New York Obstetrical Society, is formulating Standards on Maternity Care. A well qualified nurse has been added to the staff of the Federation to undertake this work.

Two studies have been made of work done by the Department of Health and private agencies in baby health stations—one covering the Borough of Brooklyn and the other the Borough of Bronx.

A joint Committee of Pediatricians and representatives of the Committee on Health Stations have been working on standards and methods of procedure for Child Health Centers. This Committee has also been assisting the Department of Health in developing a consultation service for the Department of Health Baby Health Stations to be given by the Pediatric Departments of the medical schools.

The Judson Health Center

Preventive and curative measures are included in the health program conducted by the Judson Health Center in a limited area in New York's lower west side. In addition to the health clinics usually in operation in health centers, Judson provides certain treatment clinics for its clients such as Dental, Eye, Ear, General Medical, Children's Medical, Physiotherapy and Heliotherapy.

Special emphasis is placed upon the follow-up work and teaching methods employed by the Center's staff of public health nurses, nutritionists and Italian aides. A training school for mothers and babies, sponsored and supported by the J. C. Penney Foundation, is conducted for undernourished children whose mothers are in need of training in approved methods of child care.

During the year there has been added a Mental Hygiene service in which mental and behavior problems of children are studied. An attempt is made to give all field workers a mental hygiene approach to the public health problems.

For the year 1928 the Center recorded 27,517 visits to the clinic, 10,162 field visits and 3,689 class visits. In the training school 3,991 days of nursery care were provided.

Child Study Association of America

A Consultation Service has been established whose aim is to study difficulties in parent-child relationships. Cases are limited to situations in which the child involved is eight years or younger, and where in the opinion of the Consultation Service the problem lies largely in faulty parental attitudes and practices. The special interest of the Consultation Service is to determine the basis of these and to observe with the parent the change in the child's behavior as the result of altered parental behavior. Cases are largely drawn from study group members.

The Babies Hospital *

The Babies Hospital is now a part of the Medical Center in New York City having joined the Presbyterian Hospital, the College of Physicians and Surgeons, Sloane Hospital, and Vanderbilt Clinic with their unsurpassed facilities for research and medical education. The Babies Hospital now carries the medical and surgical work for children of all ages between the maternity hospital and the general hospital for adults.

Every child who enters the Hospital becomes the object of research. He is not a type, one of a group for whom the remedy has been found, but an individual whose requirements and limitations are recognized and studied. Children, perhaps, more than adults of any age need personal, individual care. The new Babies Hospital is designed to meet this fundamental need.

The new building provides for single separation rooms, three and four-bed groupings, and each of the 12 ward beds is separated from its neighbor by a six-foot glass partition. This serves to minimize the danger of infections peculiar to children's hospitals and permits the nurse in attendance readily to watch all the children. A wide solarium and a loggia, for sun treatment and recreation, are on each floor. Warm rooms for premature babies, cold rooms for pneumonia cases, all are planned on a scale commensurate with the need.

The Babies Hospital will make available a three months' training course in pediatrics for all student nurses at the Medical Center.

In commenting on the work of the hospital in 1928, Dr. H. B. Wilcox, the Medical Director, speaks of "the laboratories at the new hospital as providing adequate space and complete equipment, in Chemistry, with room for ten to twelve workers; in Bacteriology, with desk space for six to eight workers; in Pathology, with desk room for eight to ten workers. To meet this enlarged program, Dr. Wollstein has gradually increased the personnel of these three laboratories.

"During the past year, instead of the bi-weekly visits of a roentgenologist to interpret the plates taken at the hospital, Dr. Lang and Dr. Caffey of the Attending Staff have given this work their daily attention. This has greatly increased the value of the plates taken, as an intimate clinical knowledge of the patient is now closely coupled with the technical interpretation.

"In photography, improvement has been brought about through more careful cataloguing and description attached of each negative made. In addition to the previous routine work of the photographic department, motion pictures are now being made of interesting conditions, which otherwise would be impossible of permanent recording. This photographic and motion picture work is valuable both for the completion of hospital records and for teaching purposes.

"The rapid growth of the posture, massage and heliotherapy group in the Out-Patient Department, has placed it among one of the valuable branches of

the hospital service. This special clinic has more than trebled in size during the past year.

"A new special clinic to care for children showing convulsive tendencies has recently been established and is operating in conjunction with similar clinics in the Departments of Medicine and Neurology at the new Vanderbilt Clinic."

The Maternity Center Association *

The Maternity Center Association aims to teach the public the vital importance of adequate maternity care, what that care is, and how to obtain it

The following services are conducted:

- (1) Intensive maternity service from 14th to 64th Streets on the East Side of New York where medical consultation, supervision and instruction are given to mothers during the prenatal and postpartum periods and where a complete nursing service including day and night delivery service, instruction at mothers' classes, bedside care during postpartum period are given to approximately one thousand mothers a year. The work in this Center is set up to provide an experience field for graduate nurses in maternity nursing and during the last six years more than 2,500 public health nurses have had from one week to six months observation and instruction.
- (2) Ambulatory clinics in the offices of other organizations provide medical supervision for patients who would otherwise have none and help teach the community what constitutes medical supervision during pregnancy
- (3) Classes and consultation service for mothers from the salaried and professional groups. These classes are held at the Administrative Office which is centrally located. The mothers not only learn the theory of mothercraft and child-care but they have time to actually practise under supervision
- (4) Institutes for public health nurses all over the country to teach modern maternity care and methods by lecture and demonstration.
- (5) Distribution of maternity literature addressed to both the nurse and the mother.

During the past few years considerable time has been spent on manufacturers and retail dealers to encourage them to manufacture and retail the kind of baby things which the Maternity Center Association has found most practical and advises mothers to use. This last year has seen some satisfactory results. Two department stores in New York City are carrying everything which the Maternity Center Association recommends

ROCHESTER

Tuberculosis and Health Association of Rochester and Monroe County *

There has been a most significant change of emphasis in our work here.

In the ten years of our Child Health Department service there has been a significant development in the school health education program in this territory, and in this I believe our Association has been of service. As you know, it often happens that good can be accomplished through consultation service provided by committee groups, without necessarily the provision of direct service activities. I think this has been conspicuously so in the service of one of our Association committees to the Board of Education in a study of the school room ventilation problem. In this study we fortunately were able to enjoy the constructive leadership of Dr. C.-E. A. Winslow, and Dr. Palmer of the American Child Health Association. Whereas an actual physical test was not made here under our auspices, school authorities acknowledged their appreciation of the information secured for them through the medium of our Committee.

In addition to our Fresh Air Indoors Ventilation Committee, whose work was devoted principally to the problem of school room ventilation, our Association has had an active Child Health Committee which sponsored during this period an Emerson Nutrition Class Program and other supplementary school health education services, including the Modern Health Crusade, the temporary use of health clowns, and so forth, during the time when health education work in the schools was in its infancy. During this time the Association was particularly active in the Parochial Schools of the City and County and in the County Public Schools. Through Dr. Kaiser, our Association President, special emphasis was placed on urging the removal of tonsils and adenoids, as part of the program for the correction of physical defects.

Nutrition class results based on a study of the program of the Department of Health Education of the Rochester Public Schools, made by Dr. Kaiser, lead to the conclusion that underweight children should be continuously followed up for a period of years if final results were to be most satisfactory. It was evident that the nutrition class was successful in causing immediate gains to a relatively small number of children. A home study made by the Association confirmed the conclusion of Dr. Kaiser that without home control the efforts of the school authorities in many cases did not secure desired results.

In the Parochial Schools the question was raised as to the extent of the school's responsibility for home control, and their conclusion was that the school was not an agency for the education of the parents.

In the Rochester Public Schools the program is still being carried out in certain selected centers where a health counsellor is placed and where the concrete and effective methods of teaching health habits developed in a nutrition class program have been made available to all children in the school.

With the completion of the nutrition demonstration the Association secured

the cooperation of the Public Health Nursing Association and two of the general hospitals in the establishment of a preschool health consultation service for apparently well children of preschool age. A supplementary program of health habit and hygiene instruction was developed for the Public and Parochial Schools, special attention being given to the development of an informative program for teachers in service. Right now the major effort in the School Health Education Department is devoted to teacher instruction, and there is a changing emphasis from the question of height-weight to the general physical condition of the child and its chance for maximum physical and mental development.

UTICA

Utica Visiting Nurse and Child Health Association *

The Utica Visiting Nurse and Child Health Association has made no changes in the general plan of its work during the year 1928 with the exception of an additional member on the Medical Advisory Board and a revision of the general routine used in the four Child Health Stations. The Medical Advisory Board was increased from twelve to thirteen members. The new member appointed in 1928 is the chairman of the "Public Relations Committee" of the County Medical Association, a newly created committee in the Association. The general routine of the four Child Health Stations was revised by the Medical Advisory Board in February, 1928.

The organization has four Child Health Stations. Two clinics or consultations are held each week at each station. The infants and preschool clinics are held on the same afternoon, as it seems more convenient for the mothers. These four stations are the only infant and preschool consultations or clinics in the city except a sick children's clinic which is held twice a week by the Utica Dispensary Board at their regular Dispensary or Clinical Building.

The physical examination of the infants and preschool children includes general examination of eyes, ears, nose, throat, skin, muscles and chest, with attention as to whether or not the child is of normal weight, has enlarged glands, hernia, or orthopedic defects.

Our prenatal work consists of two prenatal clinics each month at each of the four Child Health Stations. Any mother who is not under the care of a private physician is urged to attend the prenatal clinics for examination and consultation. The nurses on our staff visit in the homes of the prenatal patients. We are not having the mothers' classes, although we regret that we are unable to arrange for them.

The following recommendations have been submitted by the Medical Advisory Board and approved by the Board of Managers of the Utica Visiting Nurse and Child Health Association, and are to serve as a guide in the conduct of the Child Health Stations:

What patients may be admitted to the Child Health Stations? Any baby

or preschool child may be admitted to a station for weighing, measuring, and for toxin-antitoxin.

What patients should receive the service of the station physician? Any family unable to employ a private physician may consult the station physician. Any baby or preschool child which the station physician finds in need of medical attention for conditions other than those which may be included under nutrition or feeding, and acute skin disorders, should be referred to the Utica Dispensary or to the city physician.

Physical Examination of patients: Each new patient consulting the station physician should have, at the time of the first visit to the station, as thorough a physical examination as is possible for the station to make, and a subsequent examination whenever necessary.

What medication should be given at the Child Health Stations? No medication should be given or prescribed by the station physician except Cod Liver Oil, Castor Oil, and salves and lotions for such skin conditions as are in need of immediate attention and seem likely to respond to temporary treatment.

Who should decide concerning the patient's ability to engage a private physician? The Visiting Nurses assisting in the stations should be sufficiently acquainted with the family and the home conditions to be able to determine which patients are in need of consulting the station physician. In case of a new patient the nurse will have to make her decision upon the history obtained from the parent or other person accompanying the patient until a home visit can be made.

Patients in need of tonsil and adenoid operation: Any patient examined at a Child Health Station and found in need of the removal of tonsils and adenoids should be referred to the nose and throat clinic at the Utica Dispensary. The Dispensary will be responsible for the hospital recommendation and the arrangement for operation.

NORTH CAROLINA

RALEIGH

State Board of Health—Bureau of Maternity and Infancy

For the fiscal year 1928 there were no radical changes in the plan of work or method of procedure on the part of the Department of Maternity and Child Hygiene of the North Carolina State Board of Health. For the aforementioned period of time the State Board of Health granted financial subsidy to more than twenty counties for the employment of whole time public health nurses to do maternity and child hygiene nursing. In the majority of these counties at least one permanent infant and preschool clinic is established, said clinics being for the physical examination of applicants for such service. In the most of these clinics physicians are present to do examinations. These examinations

are ordinary physical examinations. The laboratory work, special examinations such as nose and throat and teeth are not included. In the few clinics conducted at which no physician is present the public health nurses do a physical inspection. In all these examinations there are included such data as general history, both family and personal, weighing and measuring, and so forth

Examinations of prenatal cases are done for the most part in connection with the infant and preschool clinics. There are two permanent prenatal clinics in the state of which I have knowledge, one for colored people located at Goldsboro, N. C., and another for both white and colored located at Charlotte, N. C. The prenatal service in this state consists of distribution of prenatal letters and individual nursing visits into the home, and to a limited extent the examination of prenatal cases in clinic.

Between July 1, 1927, and June 30, 1928, there were 5,175 clinic and individual conferences conducted by physicians; there were 1,248 expectant mothers registered and examined; 11,773 preschool children were registered and examined; the total number of visits made to conferences by expectant mothers was 1,248, by infant and preschool children, 13,537. There were 4,736 prenatal visits made to homes; 5,262 post-natal visits made to homes; 14,291 home visits to infants; 8,839 home visits to preschool children.

The number of infants under one year of age reached through the Bureau during the year was 33,991; the number of preschool children reached was 37,609; the number of expectant mothers reached by means of prenatal letters, conferences, home visits, and other work of the Bureau was 16,206.

OHIO

CLEVELAND

Day Nursery and Free Kindergarten Association

We have sold Mather Nursery and are erecting a new building which we hope is going to be most satisfactory to us, and a model which can be followed by other organizations wishing to build nurseries.

So often nurseries are housed in remodeled buildings, that the opportunity to start fresh and build a new one offers great possibilities. Another year I hope to report that it is operating successfully

Our medical card shows what is included in our physical examination. All the children under fifteen months are under the care of the Health Dispensary which is a part of the Board of Health. The prescribed feedings for these children are sent to the nurseries and carried out by us while the children are under our care.

The Visiting Nurse Association of Cleveland

The Child Welfare of the city of Cleveland is carried by the municipality. However, the Visiting Nurse Association does some follow-up on private physicians' cases where there seems to be a need, teaching milk modification, and so forth.

After the post-partum care, when possible and with the consent of the private physician, we refer our babies to the City Welfare Stations.

We conduct one prenatal clinic for the Western Reserve University Maternity Hospital and do the prenatal follow-up only on these cases. We make prenatal visits on private physicians' cases monthly until the seventh month, then twice a month until delivery. Our instruction is quite complete, but we do not do urinalysis or take blood pressure except for the Maternity Hospital.

For the last two years we have had prenatal group classes in all our branches. The instructor for these classes is now supplied by Maternity Hospital free to us. These classes, in the beginning, were for pay patients only, but now extend to all types.

We do no organized preschool work, but at present stress diphtheria immunization. We also do and have done for several years post-operative follow-up on tonsil and adenoid cases from the hospitals on the preschool child.

We are awaiting the program of the recently organized Cleveland Child Health Association with much interest, hoping we can fit into their plans in some useful way.

Western Reserve University, School of Applied Social Sciences

University Public Health Nursing District, in cooperation with the Out-Patient Department of Maternity Hospital, has a prenatal program, including clinics, mothers' classes and nursing visits in the home.

In cooperation with the City Division of Health it has infant welfare clinics for children under two years of age and nursing visits in the home.

In cooperation with Western Reserve University it has clinics, mothers' classes, nursing visits in the home for the preschool child from two to six.

Richard Bolt, M.D., is to be the director of our new Cleveland Child Health Association which has just been organized.

TOLEDO

Toledo District Nurse Association *

During 1928 fourteen infant welfare and preschool clinics were held weekly.

There were 28,781 visits made to 4,650 babies under two years of age; 2,246 were new cases, of whom 1,678 were breast-fed. There were 4,411 birth certificates delivered.

Two prenatal clinics were held weekly, with an average attendance of 9 patients. Group instruction was carried on in these clinics by the nurses. The patients attending these clinics were delivered in their homes or in the hospitals by the physicians who conducted the clinics. A nurse in attendance at delivery was also furnished by our Association.

Preschool surveys were made in two school districts, and follow-up home visits were made by our nutrition workers.

Thirty-one Little Mothers' Leagues were conducted with 388 girls in attendance.

CINCINNATI

Board of Health

Child health clinics have been under way here for many years. The bulk of the work is done by the Babies' Milk Fund Association. Our Children's Division at the Health Center is a little different. Here we have a Children's Division. We conduct infant clinics on two afternoons each week; children of preschool age are accepted for complete physical examination, vaccination against smallpox and immunization against diphtheria. When we say physical examination we mean that they pass through the chest clinic, the heart clinic, the venereal division and the dental department.

In 1928 our diphtheria prevention campaign which was launched on December 3, 1928, was perhaps the outstanding accomplishment.

The Chairman of the sub-committee of the Public Health Committee on the diphtheria prevention campaign reported as follows to the Academy of Medicine:

"Educational in character, the primary object of the campaign was to stimulate our people so that mothers and fathers would cultivate the habit of taking the children to their family physicians for toxin-antitoxin treatments.

"Our chief concern was to safeguard children under the age of ten, especially those under five, because it is in this age group that most of our cases and deaths from diphtheria occur.

"'Banish diphtheria from Cincinnati' was our motto which appeared on one hundred thousand leaflets distributed to all of the children in the public and parochial schools of the city, calling attention to the campaign.

"Appropriate waiting room cards, calling attention to the efficacy of toxin-antitoxin treatment were mailed to all physicians in Cincinnati together with a personal letter from the committee, urging cooperation of the medical profession.

"A special edition of 'Cincinnati's Health,' the official bulletin of the Health Department, carried our message and appeal to school principals, parent-teachers organizations, medical practitioners, and the lay public who are interested in public health progress.

"To facilitate our movement, six physicians from the State Department of

Health were assigned to Cincinnati for a period of six weeks by the State Director of Health, Dr. John E. Monger, to assist the district physicians in this laudable enterprise. Through the solicitude of Dr. Monger, toxin-antitoxin was made available at one-half the regular Board of Health price, and it is refreshing to report that many members of the medical profession availed themselves of the opportunity of buying 30 c.c. of toxin-antitoxin at sixty-two and one-half cents, or 10 c.c. for twenty-five cents.

"The results of our efforts to combat diphtheria have exceeded all expectation. More than twenty-six thousand boys and girls have been treated by their family physicians or at the school clinics without mishap, so far as we know."

The Babies' Milk Fund Association *

The Babies' Milk Fund Association conducts six Child Health Stations, five for children under six years of age and one, at the Out-Patient Dispensary, for children to twelve years of age.

In cooperation with the Cincinnati Maternity Society, The Babies' Milk Fund Association has developed a prenatal program including clinics, mothers' classes and nursing visits in the home. Obstetrical and post-partum care is given to selected cases in their homes. A post-natal clinic was established a year ago.

Some interesting research work on rickets has been done under the auspices of The Babies' Milk Fund Association. A check-up is now being made on the teeth of children of mothers included in the study of "Effects of Diet During Pregnancy on Development of Rickets in the Offspring"

Public Health Federation

The Child Hygiene Council of the Public Health Federation has carried on a program for its monthly meetings of talks by specialists on health subjects in which there might be new developments which should be known to all those interested in child welfare. The subjects included: The Epileptic Child; Health in Relation to Wards of the Juvenile Court; Our Present Knowledge of Rickets, The Status of Sunlight Treatment; Tuberculin Tests and Calmette Immunization; and Present Status of Goiter Treatment.

Some valuable work was done by the committees of the Child Hygiene Council. The Committee on Health Education in the Schools made a survey of health conditions in public and parochial schools in Cincinnati. Such matters as the noon and recess lunches included the use of milk and the sale of candy. The time given to health and physical education, the text or outline used and other matters concerned with health of the school children were checked for each school. A committee on tonsillectomies arranged with the various hospitals to take care of children examined in the Summer Round-Up clinics. A member of this committee is doing research work at the Children's

Hospital among children whose tonsils have been removed. This is part of an attempt to ascertain the real need for additional tonsillectomy facilities. The Committee on the Health of the Preschool Child has begun preparation of a booklet on the Preschool Child. The Committee on Diphtheria Immunization cooperated actively with the Health Commissioner in promoting a campaign for the immunization of children against diphtheria carried on in the public schools and with the aid of the Mothers' Clubs, during the month of December

The Council again acted as the liaison officer between the Board of Health and the Mothers' Club in the matter of Summer Round-Ups, arranging for committees, printing instructions to Mothers' Clubs and assisting in general in the Summer Round-Ups. There were 2,329 children in 78 schools examined in the city. In the county 1,280 children in 14 schools were examined.

A recommendation was made by the Child Hygiene Council which was carried out by the Mouth Hygiene Council, namely, that dentists be secured to examine the mouths of children in Summer Round-Up clinics.

The chairman of the Child Hygiene Council acted as local chairman for May Day-Child Health Day.

The President of the Academy of Medicine appointed a member of the Child Hygiene Council as official representative to the Academy of Medicine. This representative reported the work of the Council at a meeting of the Academy.

The Day Nursery Section, which is a division of the Child Hygiene Council, has held monthly meetings during the year. A physician spoke on the subject of "The Health of the Preschool Child," outlining standards by which workers might determine whether or not children of various ages are developing normally. The subjects of Physical Guidance, Recreation of Children of School Age, and so forth, were presented.

Beginning September, 1928, meetings were conducted on the discussion plan with an expert present as Advisor. Such discussions were: Cooperation with Parents, Fees for Day Nurseries, Household Management, Day Nursery Mothers' Clubs. Through the section, day nurseries are stimulated to keep within the minimum standards required by the State Department of Public Welfare.

OKLAHOMA

TULSA

Public Health Association

The term "prenatal care," with us, includes: obstetrical service in the hospital and home; prenatal clinics; instructive nursing visits in the homes; and, in some instances, mothers' classes; distribution of literature. Our obstetrical care does not include delivery in the home.

We have two health centers, one for the white and one for the negroes, in

which the following clinics are held: child welfare, ages from birth to six years; prenatal; tuberculosis; immunization. At all of these clinics the physicians, both white and negro, give their services.

We have been able to make arrangements for our obstetrical cases with the St. John's Hospital in this city, for a very small fee, fifteen dollars for one week. This includes delivery service and one week in the hospital. This is offered to those who attend the prenatal clinic regularly and enter not later than the seventh month. In the majority of cases the patients are able to provide this fee themselves by saving a small amount each week. If they are unable to do this and are deserving, the Association has a fund to be used to supplement.

The patients return for post-natal examination before being discharged, and the babies are entered in the child welfare clinic as soon as possible.

During the prenatal period an effort is made to have the patient visited at least twice a month by the Public Health nurse.

Regarding the type of examination of the patients at the prenatal clinic: a thorough physical examination is given; blood pressure taken at each visit; Wassermann is taken; urinalysis is made at least twice a month; also an effort is made to have the necessary dental work cared for. If the Wassermann is positive for syphilis, we have been compelled, because of the lack of city or county venereal clinics, to give the necessary treatment and have had the most encouraging results in the improvement of the mothers and the condition of the babies after birth.

We have been much gratified in the cooperation shown by the mothers, especially negroes, both in the attendance at the prenatal clinics and the mothers' classes held by the nurse.

The physical examination at the child welfare clinic is very thorough, given by one of the leading pediatricians, including a Wassermann when indicated, and treatment given if necessary; Von Pirquet; and the last few months we have not allowed attendance after the first examination unless the children are immunized for diphtheria, typhoid and smallpox. We find the result of this has been gratifying in the increased number of immunizations we have had and it has not prevented their regular attendance at the clinics.

As far as possible all corrective work recommended in the child welfare is done.

In Tulsa City there was an attendance in the 354 clinics of 4,982. In addition there were three rural child welfare clinics. The nurses inspected, weighed, and measured 6,698 children in the rural schools. Arrangements were made for the hospitalization of 93 patients. During Negro Health Week there were 24 demonstrations for mothers and 21 talks before clubs and classes.

There were 21,778 visits of Public Health Nurses in homes.

PENNSYLVANIA

PITTSBURGH

Public Health Nursing Association *

The work of the Child Welfare Division of this Association included the routine class instruction in prenatal care, infant and preschool supervision to all new staff members and students throughout the year. The work also included the supervision of fourteen Well Baby and Preschool Conferences, and field supervision of staff nurses and students.

In our prenatal work the total number of cases carried from January to July, 1927, was 2,379, from January to July, 1928, the total number was 2,354. The number of new cases admitted from January to December, 1927, was 3,262; from January to December, 1928, the number was 3,080, the decrease being 182, or 6 per cent.

During the last six months of the year 1928 a definite effort was made to visit all prenatal cases twice a month during the last two months of pregnancy. Also an attempt was made to give the expectant mother a definite date for the nurse's return visit, in order to reduce, if possible, the number of "Not Seen" visits. We find that for the most part this plan has worked successfully, although the pressure of acute nursing work has caused the date of return visits to become somewhat elastic.

The total attendance at our Well Baby Conferences for 1927 was 10,783; for 1928 it was 11,957, the increase being 1,174, or 11 per cent. The total number of new admissions at Conference for 1927 was 1,143; for 1928 it was 1,344, the increase being 201, or 17 per cent. The total attendance at the Preschool Conferences for 1927 was 208; for 1928 it was 217. There were 530 Well Baby Conferences held throughout the year, with a general average attendance of 22.5.

In addition to feeding and training, we placed especial emphasis on proper shoes for the infant and run-about child through the use of posters and sample shoes (Mrs. Day's Ideal Baby Shoes) which were displayed at each conference. We found that the mothers were very much interested.

The Conference physicians were most interested and enthusiastic in their work and of a stimulating help to the nurses.

Our volunteer group have responded well and have been interested in the Conference work and faithful in attendance. We closed the year with a total of nine volunteers in regular attendance, which gives us volunteer help at all conferences except two.

The Preschool Conference at Soho was discontinued October 1st, as a detached conference. It was then combined with the Well Baby Conference at the same station; as a result the attendance has greatly improved, the mother finding the arrangement of bringing the infant and run-about child for examination on the same day a much more satisfactory one.

The Preschool attendance January to October 1st was 98, while that from October 1st to January 1st, 1929, was 50. These figures alone show the change was a popular one.

On October 15, the Conference at Lawrenceville was combined for the colored Infant and Preschool age group, and on December 1, at Kingsley House, for both white and colored.

The total number of infants under home supervision from January to December, 1927, was 3,115; for 1928 it was 2,908, the decrease being 207, or 7 per cent. The total number of institutional visits paid to Well Babies from January to December, 1927, was 15,237; for 1928 it was 15,603, the increase being 466, or 3.5 per cent. The total number of instructive visits paid to Preschool Children from January to December, 1927, was 2,222, for 1928 it was 1,887.

The importance of home visiting cannot be over-emphasized, as it is the link of mutual understanding between the physician, the nurse and the mother. We look forward to giving our special attention to the younger infants and those infants who are not under regular medical supervision, during the coming year. Also we plan to place more emphasis on the importance of habit training throughout the entire period.

We hope, during the year 1929, to change each Well Baby Conference into a Child Welfare Conference, and so offer continuous supervision, medical and nursing throughout the first six years of life.

We are hoping this coming year that the nurses will be able to make a complete prenatal visit in the home, including taking the blood pressure and urinalysis, reporting all findings to the doctor and hospital clinics. This, we feel, will be of great value, both to the physician and to the patient.

The term "Prenatal Care" with us means nursing and instructive visits in the home.

The term "Infant" is defined as the child under two years.

The physical examination is complete, with the child undressed. This includes weight, examination of head, chest, abdomen, extremities, measurements, and posture. This examination is made on admission, at nine months, and yearly thereafter.

YORK

Visiting Nurse Association *

We have a regular Visiting Nurse program which includes prenatal advisory care, care at time of delivery, and the after care of mother and new-born infant, which includes registration in our Well Baby Conference a month or six weeks after birth.

About 50 per cent of the expectant mothers received prenatal nursing care before confinement, either in the home or in our classes for expectant mothers,

and about 37 per cent nursing care at time of delivery and about 50 per cent nursing care during the lying-in period. About 53 per cent of all the newborn infants during 1928 were registered in our Well Baby Conference.

A definite change has been made in our School Beginners' program, where we attempt to round up all children entering school either in September or February. About 33 per cent of the children responded. The May Day Committee of the York County Medical Society stated that the physician would rather see the children of his families in his office than serve in a May Day Clinic. With this in mind, the Advisory Council of Mothers' Clubs visited all the children in their homes, urging them to attend a May Day Rally of all School Beginners. The mothers of all the children attended with the children.

A detailed instruction was given to them regarding vaccination against smallpox, immunization against diphtheria and the necessity for a full physical examination by the family physician. The six-year molars was one of the subjects stressed, and the great necessity for normal weight and all remedial defects corrected before the child entered school.

In one district more than 90 per cent of the children were taken into the family physician's office for examination, with good results as to correction.

A blank slip is filled out and given to each child to keep. The slip is designed to make health attractive to the child and to add greater importance to the occasion

BETHLEHEM

Visiting Nurse Association

The Association has a superintendent and nine staff nurses governed by a board of directors. About two-thirds of its support is received from the Bethlehem Community Chest.

Our work takes in the city and boroughs of Fountain Hill, Hellertown and Freemansburg. The scope includes instructive visiting nursing, including hourly and maternity service, infant welfare work through visits to the homes, and well baby clinics of which four are held weekly in different parts of the city, the prenatal work is simply advisory home visiting and we also do follow-up work on midwives' cases in conjunction with the State Department of Health. Until August, 1928, the bedside care and supervision of cases of the Bethlehem Tuberculosis and Health Society was given by this Association. Since that time only the bedside care is given by us.

The following is a summary of the amount of work done in 1928: In the visiting nurse work the total number of visits made was 8,038; in the baby health work 27,283 home visits were made; the total number of visits to the well baby clinic was 3,930

LANSDOWNE

Visiting Nurse Association *

We have not undertaken any definitely new work during 1928, but have increased our Child Health Centers from six to nine.

The examination made in six of these Centers does not include a vision or hearing test; in the three larger Centers this has been included in the complete physical examination.

We have increased our number of prenatal patients carried and have visited them more frequently than formerly. Our prenatal care includes only nursing visits in the home and referring the mother to private physicians for necessary care.

PHILADELPHIA

The Visiting Nurse Society of Philadelphia *

As the child health program in Philadelphia is carried on largely by the Child Hygiene nurses of the City Health Department, it has been our policy to avoid overlapping and to extend our work only in those parts of the city not covered by the city nurses. To this end we maintained six health centers during 1928, to which 7,636 visits were made. Of this number 5,345 were infant (under one year) and 2,291 were preschool (one to six years). The health centers are staffed by a physician, a nurse and a volunteer worker. During the year the Philadelphia Health Department has been making a strenuous effort to have all children immunized against diphtheria and the health center doctors have given the toxin-antitoxin.

Our prenatal work is extensive as we are cooperating with the maternity services of the hospitals in the city. During the year we carried 3,812 patients, to whom we made approximately four visits each during the prenatal period. The visit includes blood pressure and urinalysis wherever the doctor wishes it. We are not maintaining clinics or holding classes ourselves, but are concentrating upon visits in the home. During 1928, 23 per cent of our work was active maternity, which includes prenatal, delivery and post-partum care.

A copy of the annual report for 1928 is on file.

The Babies' Hospital of Philadelphia *

We have Health Habit Classes for preschool children and are stressing, throughout our program, the importance of health education. Our well children are brought in for periodic health examinations at specific intervals, and although they are not segregated to the extent of having separate clinic days, they are being seen daily in both our morning and afternoon clinics. We feel that we are accomplishing more by having them come in this way, as we do not wish to interrupt the continuity of the physician's care of the individual child.

The children are admitted to the service of various pediatricists in rotation and each director is responsible for the health supervision of that child as well as he is for any illness that might occur at any time during its preschool existence.

We define the infant as the child under one year and the preschool child from one year to six. Under the heading of prenatal care we include in our program mothers' clinics for the instruction of hygiene in pregnancy and the care of the new-born baby and nursing visits in the home.

The Community Health Center

The Center is a health clinic, and a health examination includes a complete physical examination, a routine urinalysis and dental examination and dental treatment. Wassermanns and blood counts are given as the need is indicated. A record sheet form is kept.

We see both children and adults in our clinics—any patient up to and including 16 years being considered a child, anyone 17 or over an adult.

In our Health Extension Department we have a worker who follows up malnutrition cases through the active worker on the individual case. It is the aim of the Health Extension Department to give a working knowledge of fundamental health rules for everyday use and to stress the preventive side of health work to individuals outside the Health Center Clinics but affiliated in some way with the Jewish Federation agencies. We try to cover as many sections of the city as possible and organize groups of different types in each section.

Thus our health program reaches preschool children and their mothers, adolescent boys and girls, and young working men and women through various settlements, Hebrew schools, and recreation centers.

The White-Williams Foundation

This past year the Foundation reached a goal which it set for itself some time ago. There has now been combined in one school a flourishing Home and School Association, a study class for mothers from the Association, conducted by a leader from the Parents' Council, and a counselor who is finding how much help the children receive from this excellent team work. Perhaps "goal" is not the correct term to apply to this united achievement, for as yet it is only in one school, but the Foundation is looking to the time when such intelligent cooperation will be in every school in the city.

The possibility of it began three years ago when the Director was elected President of the Philadelphia County Council of Home and School Associations. Since then the number of Associations has been slowly but steadily increasing. There are now thirty-six Associations affiliated with the Council and there have been several study classes for parents. Last June the Publicity Committee realized \$550 on a year book containing reports of the Associations and the various committees, together with articles from several prominent edu-

cators There is great promise for the future in a union of parents, teachers and school counselors or visiting teachers as they are called in other cities. It is this which White-Williams counselors are trying to promote in the schools where they are working, for it gives them the same good contact with groups of parents which they have had for the last three years with Normal School students in the Schools of Practice. This past year the field work with a selected group of these students has been conducted regularly. They seem to find much help from this in their understanding of children.

The other activities of the Foundation have been carried on as usual. Since no examination has as yet been given for counseling in the higher schools, a White-Williams counselor has continued to act as consultant to the Junior High School counselors.

In the summer, after consulting the Associate Superintendent in charge of elementary schools and the principals of the Poe and Jackson Schools, the demonstration of counseling was moved from the former school to the Jackson. For the first time this gives us a school among Italians. The Martin School is predominately Polish and the Madison School, where the counselors from the Friends' Quarterly Meeting are working, is in a mixed Russian, southeastern European and colored neighborhood. One of the two Schools of Practice is made up of American children and the other of the second generation of Scotch, English, and Irish. This gives us contacts with many nationalities and is helping us to adapt school counseling to them.

Through the Director the Association is affiliated with the National Committee of Visiting Teachers, the Pennsylvania State Council for the Blind, and the Board of the Mother's Assistance Fund of Philadelphia.

The Associate Director was chairman of the 1928 Program Committee of the All-Philadelphia Conference. She spoke on "The Visiting Teachers in the High Schools" at a meeting of secondary school principals during the National Education Association meeting in Boston. This is the first time that visiting teaching has been given a place on the official program of the Superintendents' Conference.

Last spring the consultant for the Junior High School teachers who had been with the Foundation for six years was granted three months' leave of absence for study and travel. While she was abroad she attended and spoke at the first International Conference of Social Work in Paris.

The activity which has perhaps progressed most rapidly has been the scholarship work. A committee of men was formed in January to select the boys to whom scholarships should be awarded, and a little later a scholarship publicity committee was organized to bring the work to the attention of clubs and individuals. Four News Sheets have been published. The October number contained a letter from the President of the Scholarship Alumni Association, which had been read at an earlier Alumni meeting, conveying to the Foundation a gift of \$200 raised by the Alumni for a White-Williams scholar-

ship. As the treasurer's report shows, the income from special endowments and gifts from Home and School Associations, clubs and individuals amounted to more than \$10,000, a larger sum than ever before, but still far short of the need.

In February, at the suggestion of the Scholarship staff, a conference of workers from New York, Chicago, Rochester and New Orleans was held at Netcong, New Jersey, to discuss methods of scholarship work.

The statistical report for the year is as follows The Staff consists of fifteen professional workers, Director of the Foundation, President of Home and School Associations; Associate Director supervisor of work of Foundation and teacher at Swarthmore College (52 students taught during two terms); Consultant for 25 Junior High School counselors in charge of approximately 1,500 children; five school counselors paid by the Foundation, two part-time counselors paid by Friends' Quarterly Meeting, and two full-time counselors in Parish schools.

The counselors supervised field work of 49 students at different times during the year and took part in many school activities in addition to case work with 1,057 children

Two full-time and one part-time scholarship counselors administered 152 scholarships and 117 cases not receiving scholarships

There were 14,196 conferences held in behalf of children; 4,137 visits to and in behalf of children; 108 talks given by staff.

PHILADELPHIA

Philadelphia Child Health Society

The Society was organized in 1913. Its purpose is the promotion of Child Health through research, education and demonstration with the cooperation of public and private social and health agencies and voluntary community groups. The method is to study the needs, to demonstrate the value of various procedures for the improvement of child health and to secure their adoption and extension through government and other agencies. The budget for the current fiscal year is \$15,034 and comes from the Welfare Federation and the sale of literature. The child health needs of the community continue to indicate the vital need for types of work comprising the major activities of our program for the past five or six years. There have been variations but no significant changes in the nature of these activities.

During 1929 efforts are being made through committees of physicians and workers to increase the extent and improve the character of prenatal care. The methods used include lectures, motion pictures, radio, the distribution of literature, and an annual survey of work of the prenatal clinics for which a questionnaire and a record keeping sheet have been developed.

With the cooperation of school and health authorities a preschool demon-

stration is being made in one public school district. The services include physical examinations, follow-up for correction of defects, instruction in nutrition and mouth hygiene, diphtheria immunization and general health supervision.

The nutrition activities include the development and supervision of programs; the holding of demonstration clinics and classes for children and prenatal and postnatal mothers in connection with health centers, schools, hospitals and other groups. Lecture courses are being given for nurses and students in connection with city departments, health and social service organizations and universities. Dietaries and budget studies are being made for child-caring institutions and agencies. A Nutrition Conference has been organized representing all nutrition activities to unify thought and effort and for the study of the most recent progress and research in this field. A consulting bureau for the community has been established.

The mouth hygiene activities include demonstration clinics and classes, talks and studies with special emphasis in the preschool and prenatal fields.

The Little Mothers' League continues to train school girls in the care of babies.

READING

Visiting Nurse Association

We have made no change in our policy of the work of the Visiting Nurse Association, other than extending our service through branch organizations throughout the county.

We have seventeen active Baby Welfare Stations, seven of which are in rural sections. Two of these seven rural stations were opened in 1928. There are also seven Baby Welfare Stations that are under the supervision of the branch organizations. The total attendance of active babies at the seventeen stations was 1,547 under one year, 947 under two years, and 803 from two to six, or a total of 3,297 babies who made 55,284 visits to the Stations.

An intensive campaign of toxin-antitoxin is being carried on at our Welfare Stations. Our annual May Day program was very well attended by the mothers, with an attendance of over 1,100 mothers and their babies at this event. This program was held in one of our large Junior High Schools in the city. A film regarding the health of the child was shown; 647 Blue Ribbons were given to babies for six months' regular attendance, 315 Gold Medals for one year of regular attendance, and 70 Gold Pins for two years of regular attendance.

One of our nurses pursued the 1928 Summer Course in Nursing Education at Columbia University and one nurse took a course of four months at the Pennsylvania School of Social and Health Work.

We have added an hourly nursing service to the work of the organization, and our maternity delivery service has been extended to the rural district.

WILKES-BARRE**Visiting Nurse Association**

There has been no change made during the past year in the Baby Welfare Clinics run by the Visiting Nurse Association. They are six in number, held two hours each week in strategic places about the town. The average attendance is 17, but the variation is very considerable. The total attendance (not individual) was 7,786 babies during the period from January 1, 1928, to May 31, 1929.

The babies are weighed and measured by the nurse. They are examined by the doctor, on their first visit if possible, and as occasion arises afterward. The examination includes a general inspection and observation of any signs of deviation from the normal. The physician recommends any corrections which seem necessary and the mother is referred to her family physician or to a clinic. All babies with symptoms of disease are also referred to the family physician. Home visits are made by the nurses. All children under six are welcomed, but actually the child under two years is predominant.

Our prenatal work is confined to home visiting. The nurses have made 1,306 visits to 277 prenatal patients during the period from January 1, 1928, to May 31, 1929.

RHODE ISLAND**PROVIDENCE****State Board of Health, Division of Child Welfare ***

Our object is to extend our present group of activities as fast as possible.

To this end the division has taken on two well baby and preschool conferences, and we expect to establish a third one in the town of East Providence very soon. East Providence already has two such conferences, but they desire to establish one in the north end of the town, which is too far from either of the other conferences for the mothers to attend. A record form card is used at these conferences.

The town of Tiverton has this past year started to put on our regular health record program through the local nursing association. They may be able to carry the first year only, but we feel this is a splendid step in the right direction. The health record program activities are as follows:

Visiting nurse procures records of the newborn by making weekly or semi-weekly visits to the registrar's office.

Nurse makes initial visit in home as soon after birth of child as possible.

Data on prenatal care, delivery, condition of child, are obtained. Literature is left for the mother's use. At a later visit a certificate of the baby's birth is delivered to the mother.

Visits to the home are made every month for three months and then every other month until the child is one year old. After the first year visits are made every four months until the child is five years old. Correction of physical defects is urged.

The nurses also investigate all deaths of children under five years of age and still-births. All prenatal cases found are referred to the physician or local nurses for prenatal care.

Records of every child are kept on permanent file in the office of the Child Welfare Division.

The staff nurses report at the office at least once a week, usually Saturday morning, to transcribe the work of week from the field record card to the permanent record. Any problems which may have arisen in the field work are discussed with the director and any special instructions relative to the work are given at this time.

Patients are filed according to town, street, and number, each case having its chronological numerical designation. Cards are clipped so that the month when next visit is due is indicated. Black clips indicate deaths. An alphabetical index of the patients is kept so that any record may be looked up without difficulty.

Our prenatal work consists largely of advice given prenatal cases when discovered by the nurses in the homes. In one city some of the cases are followed up by the nurses making home visits, but in all other instances the cases are referred to the local nursing organizations for follow-up care. Every prenatal case is, of course, referred to the family physician.

In a few instances where it was known that the patient was to be for the city physician we have had the urine examined in the state chemical laboratory and the report forwarded to the city physician.

In cooperation with the nursing organization in one town we are to start this month regular monthly conferences with the expectant mothers. This will simply be a conference. No examinations will be made, but we hope to get most of the cases under the care of their physicians very early.

City Health Department, Child Hygiene Division

During 1928 a preschool station was opened at Federal Hill House with a doctor, nurse, and dietitian in attendance. There were therefore during 1928 fourteen child welfare stations in operation, two of them having two doctors in attendance, one of whom examines the infants and the other the preschool children. It is the custom at all stations for the physician to make a thorough physical examination of all new infants and preschool children, and at re-visits to examine such infants as are not found gaining and such preschool children as have had some illness or operation, or not been examined for more than three months.

The work in the parochial schools has gone on about as previously. The

addition of one more school nurse has made it possible to follow up more intensively by home visits the children showing physical defects and those in poor physical condition.

With funds and a portable dental chair provided by the Exchange Club of Providence dental treatment has been provided, at their homes, to over fifty crippled children, many of whom were mentally deficient. Over 90 per cent of these children had never had previous dental care and in many cases their teeth and gums were in horrible condition.

Providence District Nursing Association

There were few marked changes in the work of the Children's Department of the Providence District Nursing Association during 1928; the organization concentrated on the strengthening of existing activities rather than the development of new ones.

The prenatal work shows healthy growth, due in great measure to the close cooperation of hospitals and insurance agencies. About 1,700 cases were supervised during the year for periods varying from one to seven months. The prenatal program includes prenatal letters sent by the City Department of Health; clinics under the auspices of the Lying-In Hospital; nursing visits to the home, and mothers' classes. This last is a very new development and is meeting with unhopd for response.

The home delivery service has not expanded as rapidly as was expected, due partly perhaps to the fact that 51 per cent of the 1928 babies of Providence were born in hospitals. Despite its slow growth, however, the general feeling is that the delivery service is very much worth while.

During the year 5,800 children were supervised in the homes, about 60 per cent of them being under one year. About 40 per cent of the total number were registered at child health conferences. These conferences, operated as a cooperative activity, are under the auspices of the Child Welfare Committee, which is made up of representatives from all the child caring agencies in the city. The equipment for the conferences is furnished by the Parent-Teachers Association; the doctor and place of meeting by the City Department of Health; nursing service by the District Nursing Association, and volunteer help by the Rhode Island College of Education.

One new conference was opened during the year and another moved to beautiful new quarters built and fully equipped by one of the local philanthropists. The total conference attendance was 13,755, an increase of almost 500 over the previous year, and representing an increase of almost 125 per cent during the past five years.

Providence Child Welfare Committee

The work of the Providence Child Welfare Committee has been conducted along the same lines as last year, each phase showing satisfactory development.

Nutrition workers are being introduced into preschool clinics with excellent

results. An expectant mothers' club was opened in April at Federal Hill House and the establishment of others is being planned. The summer round-up undertaken by the Congress of Parents and Teachers showed very good results last year and is being carried on at the present time.

A new welfare center was opened in a wing of the Boys' Club, donated to the city by Senator Metcalf and Mr Stephen O Metcalf. This health center, equipped at the expense of Senator Metcalf, will take care of the work formerly carried on at Branch Avenue Neighborhood Center.

A new well baby clinic was opened on May Day in the Eddy Street School, and the workers in charge report excellent attendance and much interest.

TEXAS

FORT WORTH

Department of Public Health and Welfare, Nursing Division

The Nursing Division of the Public Health and Welfare of the City of Fort Worth aims to provide preventive and educational health service to anyone, regardless of financial status. It is maintained entirely through city taxation.

The Nursing Service had its origin under the Fort Worth Relief Association. A clinic, where charity patients received medical care, and the nursing service were maintained as a unit. The physicians gave their services free of charge. In 1920 a budget of \$10,300 00 was allowed for this work and in 1921 this amount was increased to \$18,000 00. In 1922 the Clinic was moved to the City County Hospital, a charity institution maintained by both city and county.

The Field Nursing was retained by the Fort Worth Relief Association. In 1922, \$7,098 00 was allowed for this service. In 1924 the first colored nurse was put on the service. Due to a lack of funds, the Anti-Tuberculosis Society had to release their nurse in July, 1924.

In 1925 the City Manager Form of Government was adopted for the city of Fort Worth. The charter provided for the creation of the Department of Public Health and Welfare to be under the direction of a physician, who was to devote his entire time to the work. Prior to this time, the health work of the city was under the direction of a part-time Health Officer.

At the time the Department of Health was established the Public Health Nursing Service was organized. In October, 1925, this service took over all Field Nursing in the city.

Upon the failure of the Community Chest in 1927, the city made the necessary appropriation in its budget to take over the Welfare Work of the city and the City Nursing Service of the Fort Worth Tarrant County Tuberculosis Association. Thus all of the work of the Public Health and Welfare agencies was correlated and the Department created under the provisions of the charter completed.

Under the Fort Worth Relief Association the function of the Nursing Service was to render treatment and bedside care.

Evidence of the progressive policy of this new form of city government is shown through extension of preventive measures and a lessening of treatment service through medical-social work.

During the past eighteen months twenty health centers have been established for educational purposes. All treatment is rendered at City Clinics and Hospitals.

Special branches of the City Nursing Service include: Communicable Disease Nursing, Industrial Nursing, Tuberculosis Nursing, Red Cross Classes in Home Hygiene and Care of the Sick, Venereal Diseases, Prenatal Instruction and Supervision, Instruction in Care of Infants and Preschool Child at the Health Centers by Physicians and Nurses

The Nursing Service is extended into the home by the District Nurses.

The last yearly report shows that 12,353 attended the Centers. There were 37,734 district calls made, and the nurses traveled 57,000 miles in the pursuit of their duties. The budget for this period was \$31,105.00.

All tuberculosis nursing and sanatorium care within the city is paid for by the city. The sale of Red Cross Christmas Seals by the Fort Worth and Tarrant County Tuberculosis Association provides funds for the County Nursing Service only. Sanatorium care of county tuberculosis patients is provided through city and county funds.

A Health Camp, with a capacity to care for one hundred and thirty under-nourished and under-privileged children, is under the supervision of the Nursing Service. The greater number of children being taken care of are tuberculosis contacts. At present this camp is operated only during the summer months. During these three months an intensive Health Education program is conducted with the hope that by building up strong, healthy bodies tuberculosis may be prevented. In all probability a Tuberculosis Preventorium providing permanent care for these children will be the result of the health work at this camp.

An intensive Birth Registration Campaign has been conducted this past year.

We have also carried on a Toxin-antitoxin Inoculation and Smallpox Vaccination Campaign for the prevention of smallpox and diphtheria. During this time 5,164 children were vaccinated and 9,357 toxin-antitoxin immunizations were given.

VIRGINIA

NORFOLK

The Norfolk City Union of the King's Daughters *

Our prenatal care is mostly confined to home visits, although we have two very active prenatal clinics. These clinics are operated only for women who cannot afford to go to the hospital. We have three of our leading obstetricians

who make themselves responsible for the physical examinations and all the medical or surgical prenatal care these patients need. This last year we sent to the hospital 59 women. Of this number 7 were abnormalities of pregnancy, including premature babies, instrumental deliveries, eclampsia and placenta previa. All of these patients were dismissed recovered from the clinic. The next year we are planning a different program. Our home visits are to be more inclusive and intensive, and we want to start a prenatal center for colored patients, owing to the fact that no work is being done in the city for them.

Our infant welfare conferences remain the same in set-up. We have this year tried with two of the conferences to put our infant supervisor from the corrective clinic in charge, and have found that our attendance in both centers has doubled itself, with a consequent result of much better informed mothers. We are to add four new conferences the first of June, and we are going to send her to each one of them. Norfolk is not ready for a doctor in attendance at the conferences. Consequently the nurse refers the babies to the private physicians and the corrective clinics. One weekly conference had an attendance of 180 babies in the past month, an average of 45 babies a day.

We have only one preschool clinic.

WASHINGTON SEATTLE

Department of Health and Sanitation, Division of Child Welfare

The program has been essentially the same as last year, giving, with the aid of Health Department facilities, a continuous service beginning with the expectant mother and continuing to school age. We have, however, devoted more time to the expectant mother and to the infant. Also, in communicable disease control, we were able, with the help of the City Laboratory, to put on toxin-antitoxin clinics in four of the five districts of Seattle, and during the coming year an effort will be made to expand the area of this campaign against diphtheria.

Ten Child Health Clinics are held weekly at seven strategic points throughout the city (9 to 11 A.M.), four being held at the central office to take care of children requiring special medical or surgical attention. As this office (open 8 A.M. to 5 P.M.) is housed with the City Hospital and Health Department, all the clinical, laboratory and hospital facilities of the Department of Health are available for the purpose of making a diagnosis or giving treatment when necessary. The clinics are under the direction of the Seattle Pediatric Society, which has proven an extremely satisfactory arrangement. Public Health nurses visit in the homes.

Prenatal care is given to the mothers who are to be confined at the City or County Hospital. It includes, after a complete physical examination and

Wassermann at City Hospital prenatal clinic, follow-up nursing visits in the home and mothers' classes.

The Milk Fund provided by the City Council is distributed to prenatals and children most in need of milk who would otherwise be without it.

A close supervision of children's boarding homes has served to discourage many undesirable applicants, and a definite rise in the standards has been noted during the past year.

WISCONSIN

MILWAUKEE

Maternity Hospital and Dispensary Association

The prospective mother is instructed to come to the bi-weekly prenatal clinic at the Dispensary as soon as she suspects her condition and thereafter once a month during the first six months of her pregnancy, twice a month during the following six weeks and every week during the remaining six weeks. When it is impossible for the mother to come to the Dispensary, a physician and nurse visit her at her home as often as her condition warrants, but never less frequently than she would be seen if she were able to attend the Dispensary clinic.

During her first visit at the Dispensary, every mother is given a complete physical examination and advised how to correct as far as possible any abnormalities which may be found. Special obstetrical examination is made at this time, including pelvic measurements, uterine position, condition of breasts and nipples, complete blood test, including Wassermann, examination of vaginal and urethral smears. This is repeated every two months. Urinary examinations are made at every visit and the findings are recorded. The diet is prescribed and overindulgence is advised against. Body hygiene as well as general hygiene is emphasized.

When the mother leaves the hospital, she is taught how to care for her baby and herself, emphasizing the fact that she must come to the clinic or see her physician for an examination six weeks later. When that time arrives she receives a letter from the hospital reminding her of the need of this examination. The hospital takes care of its own patients. However, a follow-up letter is sent to the physician of the private patients telling him that in order to complete our records we would like to know whether his patient has had her post-natal examination.

During nine months of the year one weekly lecture is given at the Mothercraft School by men and women especially interested in mothers and their babies. Each lecture is followed by a question box and it is surprising how interested these mothers are in themselves and their babies. These lectures cover the entire field of prenatal and post-natal care of the mother as well as the care of the child.

We have a Babies' Home for well but homeless babies and feeding cases. It is at the Babies' Home that we give the practical instruction in care and feeding of babies to our young mothers. Besides the practical instruction, the Mothercraft Training Society gives two lecture courses during the year.

We have an accredited Training School for Nurses and are on the accredited hospital list of the American College of Surgeons.

The Association supervises and cares for infants at the home, hospital, and dispensary. Every child born at the Hospital is examined by the pediatrician in charge and thereafter is visited daily by the pediatrician during the child's stay at the Hospital. In this manner every indisposition on the part of the infant is recognized in its incipency and corrected as far as possible.

When the child leaves the Hospital the mother returns with her child to the Pediatric Clinic held two times a week at the Dispensary, and thereafter returns once a month for examination, treatment and instructions as to feeding and child hygiene. When the mother cannot come to the clinic with her child, visits are made by the pediatrician and nurse at the home once a month if the child is well, and as often as necessary in case of illness.

During these regular visits at the Dispensary each child receives a thorough examination at the hands of the pediatrician. Measurements as well as the weight of the child are obtained by the nurse and a record of same is made. Any change in feeding when necessary is given to the mother by the doctor in charge. These bi-weekly clinics are well attended by the mothers with their babies and the result has been very gratifying.

In addition to this, the Hospital maintains a Babies' Home for the care of babies whose mothers are unable to nurse their children or where the mother is sickly and artificial feeding becomes imperative. This Babies' Home is especially built for this purpose, with plenty of sunshine, light and fresh air. This Babies' Home is in charge of a pediatrician and his orders are carried out by the nurses from the Hospital. Daily weights, temperature, pulse, feeding (number, amount and composition), as well as number of stools, are recorded. All changes in the feeding as to number, amount and composition of same are ordered by the pediatrician and are carried out by the nurse in charge.

Visiting Nurse Association *

During the fiscal year just ended the average number of nurses on the staff was fifty. The work has grown steadily for twenty-one years, and this past year was extended over the entire area of Milwaukee County, approximately four hundred square miles.

The special orthopedic nursing service was started in November, 1927. The three orthopedic nurses endeavor through massage and muscle training to prevent deformities and bring relief to patients suffering from paralysis, fractures and rheumatism. One nurse spends her time at the Junior League Curative Workshop; another, one half day in the School for Crippled Children. Special

lectures in massage and orthopedic nursing, in a School of Nursing, are also given

Our prenatal work includes Mothers' Classes, four each week, and nursing visits to the home. One hundred and thirty doctors permit us to do the urinalysis, blood pressure, and so forth.

CANADA

HAMILTON, PROVINCE OF ONTARIO

The Babies Dispensary Guild

Our preschool age clinics are conducted on the appointment plan. A complete physical examination is made by a pediatrician. Examinations at subsequent visits to clinics as indicated. Home visits are made by nurses.

Our prenatal care consists of clinic service (seeing a doctor at each clinic attendance which is by appointment) and nursing visits in the home. No confinement care is given.

TORONTO

Department of Public Health *

Neighborhood prenatal centers, five in number, were established by the Department of Public Health in 1920 to meet the needs of the mother who had no family physician or whose family physician wished her to receive prenatal supervision from a center, and the mother who for some reason or other would not attend a hospital clinic. These centers were discontinued in May, 1928, as the attendance was very small and composed almost entirely of mothers who had no private physicians and could easily attend hospital clinics.

At present the expectant mother is visited by a Public Health Nurse as early in pregnancy as she can be reached, and urged to put herself under the care of a private physician. Until she does this she is given instruction by the nurse as to the care of her general health, and encouraged to keep herself in good physical condition so that complications during pregnancy and at time of confinement may be avoided, and so that she may be able to nurse her baby when it arrives. Instruction is also given patients attending the hospital prenatal clinics, where a Public Health Nurse is in attendance. This nurse forwards reports to the nurse in whose district the patient lives, for home follow-up.

Our Infant Welfare work has not changed materially. A copy of the booklet, *Care of the Infant and Young Child*, is sent to each mother as soon as her baby's birth is registered. Following this a public health nurse visits to advise medical supervision by the private physician or a health center and to give advice regarding general care.

Twenty-six health centers are conducted weekly by the Department of Public Health with a doctor and two or more nurses present. The centers are for infants and children of preschool age. The purpose of these centers is to keep well children well, not to treat disease. An effort is being made to have each new attendant of either infant or preschool age given a complete physical examination by the health center physician, a report of the findings being sent to the family physician.

This examination consists of an examination of the various body systems, including the special senses (eye, ear, nose and throat), and weight for age, and so forth.

At the Hospital for Sick Children four public health nurses are in daily attendance to form the connecting link between the doctors and the homes from which the children come. This is done by reports to and from the District Nurse.

There were 90,109 school children registered in the public and separate schools of Toronto in 1928. The public health nurses made 19,730 classroom inspections and 89,877 home visits and consultations on behalf of these school children. There were 28,500 routine complete physical examinations made by Department physicians and 7,250 special examinations. The Junior Health League or Mother Craft Classes held in other years were discontinued in 1928 because of shortage of staff. It is hoped that they will be incorporated as part of the school curriculum when re-established. The mental hygiene division of the Department with a staff of one psychiatrist, two nurses, three psychologists, a social worker, and a stenographer, examined 1,468 school children and had 308, who were found to be mentally defective, placed in special classes. The staff of this division also acts as advisors to the nurses in the field, helping them to teach the mothers the principles of child training, and to recognize and handle every symptom of maladjustment.

In 1928, in the interest of health and hygiene, 140,729 visits to and consultations on behalf of children of all ages were made. In the interest of nutrition of children 8,393 visits and consultations were made. In the interest of the prevention and cure of tuberculosis in children 10,261 visits and consultations; in the interest of the prevention and cure of acute communicable diseases in children 17,076 visits and consultations; of prevention and cure of venereal diseases 4,921 visits and consultations, and in the interest of mental hygiene 2,916 visits and consultations.

FOREIGN POSSESSIONS

HONOLULU, TERRITORY OF HAWAII

Palama Settlement*

The plan of work of the Nursing Division of Palama Settlement for the year 1928 continued along the same line as in previous years.

Baby and preschool clinics are held at the same time, one each week at each sub-station with a doctor and two nurses in attendance. There were 637 clinics held during 1928 with an attendance of 1,894 children

The prenatal work is done in connection with the maternity service. Three prenatal clinics are held each week and visits are made to the homes of all women registered in the clinics

Physical examination record blanks for babies and preschool children are used.

In comparing the work of 1928 with that of 1927 we find that there has been an increase of over 3,500 nursing visits made and a large increase in the number of treatments given at kindergartens in district dispensaries. There is a decrease in the number of kindergarten examinations and a slight decrease in the number of registered babies. The former decrease is due to the fact that it has been decided to examine the kindergartens less frequently in order that the nurses may be able to devote more time to visiting the homes of the children. The latter decrease is accounted for because fewer clinics were held owing to our reduced staff, both of nurses and doctors. There is an increase in the number of preschool children attending clinics.

The Chest Clinic has been discontinued and all tuberculosis and suspect cases are now referred directly to the Tuberculosis Bureau of the Board of Health. All the X-ray work of this bureau is now being done at Palama.

A new special clinic, the Neurological Clinic, has been started. To this clinic all cases requiring special examination and treatment of the nervous system are referred. Another special clinic, the Heart Clinic, is being organized and will be started at the beginning of the year.

No important changes in their work were sent in by the following Affiliated Agencies:

State Board of Health, San Francisco
Alameda County Tuberculosis Association, Oakland
Department of Health, Pasadena
San Francisco Tuberculosis Association
Visiting Nurse Association, Santa Barbara
Colorado Springs Day Nursery
Colorado Tuberculosis Association, Denver
Department of Public Charities, Bridgeport
Public Health Nursing Section, Graduate Nurses' Association of Connecticut, Hartford

Day Nursery, Union for Home Work, Hartford
Waterbury Visiting Nurse Association
Board of Health, Dover
Athens Child Health Demonstration, Athens, Georgia
Elizabeth McCormick Memorial Fund, Chicago
American Dental Association, Chicago
Chicago Lying-In Hospital and Dispensary, and Mothers' Aid Club
Child Welfare Station, Amity Society, Freeport, Illinois
Hygienic Institute, Department of Health for La Salle, Peru and Oglesby, La Salle, Illinois

- Huntington County Tuberculosis Society, Huntington, Indiana
 Children's Dispensary and Hospital Association, South Bend
 State Board of Health, Bureau of Child Hygiene, Louisville
 Maine Public Health Association, Augusta
 Portland Baby Hygiene and Child Welfare Association, Portland
 City Health Department, Baltimore
 Jewish Children's Bureau, Baltimore
 Department of Public Health, Lynn, Massachusetts
 Boston Floating Hospital
 Sunnyside Day Nursery, Boston
 Michigan Department of Health, Lansing
 Department of Health, Dental Division, Detroit
 Franklin Street Settlement, Detroit
 Hennepin County Public Health Association, Minneapolis
 Amherst H. Wilder Dispensary, St. Paul
 Thomas H. Swope Settlement, Kansas City
 St. Louis Children's Aid Society
 St. Louis Pediatric Society
 State Association of Registered Nurses, East Helena, Montana
 Bureau of Health, Division of School Medical Inspection and Welfare Nursing, Trenton
 City Health Department, Division of Child Hygiene, Jersey City
 East Orange Health Department
 Board of Health, Montclair
 Hudson County Tuberculosis League, Jersey City
 Department of Health, Passaic
 Board of Education, Department of Medical Inspection, Newark
 Babies' Hospital, Newark
 Commission for the Blind, Newark
 Salem Child Welfare and Visiting Nurse Association, New Jersey
 New York State Department of Charities, Albany
 Department of Health, Bureau of Health Education, Syracuse
 The Day Home Child Welfare Clinic, Troy
 Batavia Infant Welfare Association
 Riverdale Neighborhood Association
and the following from
 New York City:
 Bellevue Hospital, Social Service Department
 Berwind Free Maternity Clinic
 Bryson Day Nursery
 Child Health Demonstration Committee, Commonwealth Fund
 Greenwich House Health Center
 Hospital Social Service Association
 National League of Nursing Education
 National Tuberculosis Association
 State Charities Aid Association
 Brooklyn Children's Aid Society
 The Cincinnati Anti-Tuberculosis League
 Home for Friendless and Foundlings, Cincinnati
 Visiting Nurse Association of Cincinnati
 The Children's Fresh Air Camp and Hospital, Cleveland
 Cleveland Health Council
 Graduate Nurses Association, Cleveland
 Ohio State Nurses' Association, Columbus
 Merrick House, Cleveland
 Toledo Dental Dispensary Association
 Preble County Board of Health, Eaton, Ohio
 The Visiting Nurse Association, Youngstown, Ohio
 Tuberculosis Society of Oklahoma City
 Visiting Nurse Association, Portland, Oregon
 Marion County Child Health Demonstration, Salem, Oregon

Forsyth Dental Infirmary, Boston	Beloit Visiting Nurse Association, Beloit, Wisconsin
Philadelphia Health Council and Tuberculosis Committee	Health Department, Racine
Philadelphia Pediatric Society	Provincial Board of Health, Victoria, British Columbia
The Starr Center Association, Philadelphia	Child Welfare Association of Montreal
St Christopher's Hospital for Children, Social Service Department, Philadelphia	Public Welfare Board, Manila
Child Health Council of Pittsburgh and Allegheny County, Pittsburgh	American Red Cross, Philippines Chapter, Manila
Irene Kaufman Settlement, Pittsburgh	Royal Society for the Welfare of Mothers and Babies, Sydney, Australia
Providence Tuberculosis League	Institute de Hygiene, Sao Paulo, Brazil
Pacolet Day Nursery, Pacolet, South Carolina	Council on Health Education, Shanghai
Utah State Board of Health, Salt Lake City	

The following Affiliated Agencies sent a printed report only.

Mothers Educational Center Association, Los Angeles	Instructive District Nursing Association, Columbus
Gorgas Memorial Institute, Washington, D. C.	American Red Cross Teaching Center, Cleveland
Community Health Association, Boston	Children's Bureau, Philadelphia
Children's Hospital, Detroit	The Pennsylvania School of Social and Health Work, Philadelphia
Hinds County Health Department, Jackson	Pennsylvania Tuberculosis Society, Philadelphia
St Louis Children's Hospital	The Visiting Nurse Association, Scranton
National Child Welfare Association, New York City	

The following Agencies became affiliated with the American Child Health Association between October 1, 1928, and September 30, 1929:

Community Nursing Service of Pasadena	Hennepin County Tuberculosis Association, Minneapolis
Marion Davies Clinic, Los Angeles	St. Paul Baby Welfare Association
Pueblo Community Chest, Pueblo	Association for the Welfare of Children of China, New York City
Iowa State Department of Health, Des Moines	Board of Health, Cincinnati
The Louisville Health Council	Child Health Center, Chester, Pennsylvania
Visiting Nurse Association, Holyoke	Children's Hospital of Pittsburgh
Tuberculosis and Health Society of Detroit and Wayne County, Detroit	Public Health and Welfare Department, Fort Worth

AMERICAN CHILD HEALTH ASSOCIATION

Sixth Annual Meeting

The Sixth Annual Meeting of the American Child Health Association was held in Minneapolis, Minnesota, September 30th to October 4th, 1929, in conjunction with the American Public Health Association, the American Social Hygiene Association, and the American Association of School Physicians. One joint session was held with the Northwest Conference of Child Health and Parent Education. The meeting was not as largely attended as the annual meeting of last year held at Chicago, there being in round figures 1,400 registered for the joint meetings.

The quality of the papers in the main was excellent and the joint sessions held with the American Child Health Association were very well attended.

The annual report of the Secretary of the Association, Philip Van Ingen, M D., was approved as read and ordered placed on file.

Annual Report of the Secretary

A summary of the more important matters upon which your Executive Committee has taken action since the last Annual Business Meeting is herewith submitted

At the regular quarterly meeting of the Executive Committee, held December 7, 1928, the following matters were considered:

The General Executive presented the request made by Dr. Haven Emerson that the American Child Health Association make a survey of the Child Health conditions in the city of Philadelphia supplementary to the Health and Hospital Survey being conducted. After full discussion it was agreed that a preliminary study of the situation be made by Dr. Palmer of our Division of Research, if and when Dr. Hamill had made inquiry and investigation and had reported that such a study would seem desirable and advisable at this time. Such work being in line with Association policy, no further action was deemed necessary.

Request from the Massachusetts Institute of Technology that a member of our staff (Miss Bell) conduct a three weeks summer course in Health Education—remuneration at the rate of \$100 a week. Upon motion it was unanimously voted that this request be granted.

Request from the Westside Continuation School of New York City that a member of the American Child Health Association staff (Miss Oppen) be secured for the purpose of directing and managing their health program. After extended discussion, upon motion, it was unanimously voted: "That the Association would assign Miss Oppen to such a project for two years on condition that a sum of \$15,000 was provided to cover her salary and expenses for two years, a minimum of time to consider such an important project."

A telegram from Dr. Richard O. Beard requesting that the American Child Health Association hold their annual meeting in Minneapolis in October when the American Public Health Association were holding their annual meeting. After discussion on motion it was unanimously voted: "That the American Child Health Association hold their next annual meeting at the same time and place as the American Public Health Association." The General Executive was authorized to take further action in relation to joint meetings.

A request that the General Executive serve as a member of the Advisory Board of the Department of Public Welfare of the General Federation of Women's Clubs. Upon motion it was voted: "That the Executive Committee approve the acceptance of this appointment."

Dr. Hamill presented the question of the responsibility for appointing the Medical Advisory Committee to the American Child Health Association. Upon motion it was voted: "That the American Pediatric Society be asked to recommend to the American Child Health Association a list of persons for appointment on the Medical Advisory Committee."

At the regular quarterly meeting of the Executive Committee held February 1, 1929:

On presentation by the Budget Committee of the 1929 Budget, motion made, seconded and voted: "That the Budget for 1929 as submitted by the Budget Committee be approved."

On motion it was unanimously voted: "That Miss Anne L.

Whitney be appointed Director of the Division of Health Education, effective at once "

On motion it was voted: " That Miss Whitney's recommendation relative to the employment for one year of Miss Ethel Mealey as staff associate in the Division of Health Education be approved "

On motion it was voted: " That the American Child Health Association be represented at the American Medical Association meeting of health agencies to be held in Chicago in March "

On motion it was voted: " That the American Child Health Association contribute \$1,000 for 1929 from its conference funds to the Joint Committee on Maternal Mortality."

On motion it was voted: " That the Executive Committee approve the General Executive's serving as representative of the State and Provincial Health Authorities on the Advisory Committee of the National Organization for Public Health Nursing " It was also voted that he serve as Chairman of the Chautauqua Health Programs Committee of the American Public Health Association.

At the regular quarterly meeting of the Executive Committee held May 10, 1929:

Dr. Hamill gave a brief and illuminating report on the Hospital and Health Survey being conducted in Philadelphia, touching on the assistance given by the American Child Health Association.

Mrs Meloney made a brief statement relative to a health program in the parochial schools. It was unanimously agreed that the American Child Health Association extend every possible aid in service to the parochial schools.

Mr Edward M Flesh having moved to St. Louis, his resignation from the Executive Committee of the American Child Health Association and as Treasurer of the Association was tendered by the chair. Upon motion, duly seconded, it was voted. " That the Executive Committee accept the resignation of Mr. Edward M Flesh, as Treasurer and Member of the Executive Committee, and express their very great appreciation of his valued services to the Association." It was voted that Mr. Edgar Rickard be appointed Treasurer

Miss Juliet Bell's resignation was submitted to the Executive Committee, Miss Bell having accepted a position as the Director of

Health Education in the Public Schools of Elmira, New York. Upon motion duly seconded, it was voted: "That the Executive Committee accept the resignation of Miss Bell with regret, effective September 15, 1929; and that the recommendation of the Director of the Division of Health Education, Miss Whitney, that Miss Reba F. Harris be employed in place of Miss Bell, effective September 1, 1929, be accepted."

On motion duly seconded it was voted: "That Miss Ellen C. Babbitt be appointed as the representative of the American Child Health Association to the Congress of the Royal Sanitary Institute to be held at Sheffield and the Fifth English-Speaking Conference on Maternity and Child Welfare to be held in London."

On motion duly seconded it was voted: "That Dr. Thomas D. Wood be asked to serve as the official representative of the American Child Health Association on the Health Section of the World Federation of Education Associations; and that he serve as the official representative of the American Child Health Association at the International Federation of Home and School; both to be held at Geneva."

We are pleased to report to the membership that the work of the Association is going forward in an efficient manner along sound scientific lines. The Report of the Treasurer, Mr. Flesch, follows:

Treasurer's Report. The Year Ending December 31, 1928

RECEIPTS

Contributions

A. R. A. Children's Fund, Inc.	\$216,367.84
(General Projects No. 1 to No. 9 inclusive)	
(Projects No. 14 to No. 16, inclusive)	

Appropriations Special Projects

A. R. A. Children's Fund, Inc.	
School Health Study, No. 10	\$80,279.74
Ascariasis Project, No. 11	3,517.50
Radio Broadcasting, No. 12	9,834.92
Babies' Hospital, New York City, No. 13	15,000.00
	108,632.16

Income

Individuals	\$ 577.00
Memberships	5,962.85
Publications Sales	17,331.76
Interest on Bank Balances	263.38
Sales of Mansfield Reports	73.25
Refund on Travelling Expenses, Salaries, etc.	11,907.84
	36,116.08
	\$361,116.08

DISBURSEMENTS

General Expenditures

(Projects No 1 to No. 9, No 14 to 16 inclusive) . \$248,207 40

Special Appropriation Expenditures

School Health Study, No 10	\$80,279.74		
Ascariasis Project No 11	3,517 50		
Radio Broadcasting, No 12	9,834 92		
Babies' Hospital, New York City, No 13	15,000 00		
		108,632 16	
			356,839 56
BALANCE			\$4,276.52
Cash on hand, January 1, 1928			502 16
CASH ON HAND, December 31, 1928			\$4,778 68

Annual Report of the General Executive, S. J. Crumbine, M.D.

Continuing progress and increasing interest characterize the work of the American Child Health Association during the period since our last annual meeting in 1928.

More and more the activities of the various divisions of service are becoming consultant and advisory in character with increased emphasis on projects of a research type in the fields of child health and health education.

The following analysis of the incoming and outgoing mail for the fiscal year is an indication of the volume of the work of the central office:

	<i>Incoming</i>		<i>Outgoing</i>	
	1927	1928	1927	1928
September	6,827	6,834	5,914	7,805
October	8,150	8,390	5,590	24,363
November	7,026	7,042	7,608	7,987
December	6,243	6,246	5,188	9,219
	1928	1929	1928	1929
January	6,445	6,451	11,797	10,980
February	6,420	6,558	10,855	4,520
March	7,434	7,044	33,073	4,580
April	8,582	7,468	28,794	14,014
May	6,355	5,736	6,794	3,822
June	5,449	4,556	5,314	12,866
July	4,677	4,541	4,253	1,935
August	5,365	4,150	3,519	2,423
	78,973	75,016	128,699	104,514

Visitors calling at our offices for consultant or advisory service totaled by months as follows:

1928	September . . .	191
	October . . .	234
	November . . .	187
	December . . .	185
1929	January . . .	120
	February . . .	120
	March . . .	158
	April . . .	211
	May . . .	174
	June . . .	126
	July . . .	160
	August . . .	152
Total . . .		2,024

These visitors included teachers, health officers, students, nurses, welfare and social workers who came from many states and from the Philippine and the Hawaiian Islands. There were 76 foreign visitors coming from the following countries:

Australia	2	Hungary	2
Austria	1	India	1
Belgium	2	Italy	1
Brazil	5	Japan	13
British West Africa	1	Jugoslavia	3
Canada	3	Mexico	1
China	1	Norway	2
Costa Rica	1	Poland	1
Cuba	1	Prince Edward Island	1
Denmark	2	Russia	2
England	12	South Africa	4
Finland	2	Spain	1
France	3	Sweden	2
Germany	4	Uruguay	2
Holland	1		

To this list may be added professional workers (not native) from Ceylon, Siam, and Japan.

Cooperation with Other Agencies

The American Child Health Association has followed its policy of cooperation with other unofficial health agencies in the following instances.

I. This Association joined with several such agencies in helping to promote and sponsor a Chautauqua Health Education program, which is under the direct supervision of a committee of the American Public Health Association, whose chairman is your General Executive.

The program is financed by the Milbank Memorial Fund. The other organizations affiliated in this work are the National Tuberculosis Association and the Conference of State and Provincial Health Authorities of North America. The field work is put on by the Chicago Redpath Chautauqua and includes lectures in eighty-five cities and towns in ten states, together with a Junior Health program in each of these towns covering a period of a week each. The work is entirely experimental with a view of determining the effectiveness of public health education in the smaller communities of the states through well-established Chautauqua activities.

II. The Association is cooperating with the National Research Council and the Johns Hopkins School of Hygiene and Public Health by financing a piece of field research work to discover the incidence of ascariasis infection in the mountain sections of Virginia, North Carolina, Tennessee, and Kentucky. The State Departments of Health of these states are cooperating in the work. Thus far the research has shown that there is a very high incidence of ascariasis infection among both children and adults in the mountain sections of these states.

III. The Association is a member of the Joint Committee on Maternal Mortality, the others being the American Association of Obstetricians and Gynecologists and the American Gynecological Society. The American Child Health Association has appropriated \$1,000 for the current year to cover expenses of the Joint Committee.

IV. In September the Association cooperated with the Minnesota State Board of Health and other organizations including the Bureau of Indian Affairs in a physical examination project among a large group of Chippewa Indians to discover their actual health status. This demonstration will be presented as a basis for plans for health promotion and protection among the Minnesota Indians.

V. Similarly the Association has cooperated with health education officials and workers in a large number of teacher training institutions; with superintendents and teachers of the public schools of the country through the holding of Health Education Conferences such as was held in Sayville, Long Island, in June of this year. The results of this Conference will be commented on in the Health Education Division report.

VI. The Association is cooperating with the National Broadcasting Company in talks on child health, through the *Chcerio* program.

VII. There has been continued cooperation with the Conference of State and Provincial Health Authorities of North America, your General Executive acting as Field Secretary for that organization.

VIII. The Association is cooperating with the General Federation of Women's Clubs through representation on their Advisory Health Committee, which formulates the health program for the General Federation.

IX. The Association is cooperating with the National Congress of Parents and Teachers by conducting a department relating to various aspects of child health in their monthly magazine.

X. The Association was asked to cooperate in a survey of the health agencies in Philadelphia, which Dr. Haven Emerson was making. As no provision had been made for discovering what facilities existed there for the prevention of disease among children and the promotion of their health, the American Child Health Association was asked to undertake this phase of the survey. The Executive Committee approved of the plans and members of the staff were assigned to this study.

The findings of the Survey will be presented in a report by Dr. Emerson. It can be said in general, that the Survey has shown the necessity for more complete and accurate record keeping; has demonstrated the need for periodical evaluation and appraisal of public health and educational measures, and has stimulated an active desire and promising movement for a coordination of all medical and health promotion activities to include the entire population served.

XI. And finally the Association is cooperating with numerous local, state, and national official and unofficial organizations, including social, civic and commercial groups through its May Day-Child Health Day project.

White House Conference on Child Health and Protection

It is fitting, because of the bearing of the White House Conference on the future of child health, that an account of this historic event be here recited for the purpose of record.

The first step toward holding a White House Conference on Child

Health and Protection was taken by President Hoover when a Planning Committee was appointed.

Your General Executive was appointed to serve on this Committee, of which Dr. Ray Lyman Wilbur is chairman

As a result of the three sessions of the Planning Committee, July 29-30, the purpose of the Conference, as unanimously agreed upon, was set forth in the following statement:

- I. To review and report upon
 - A The present status of the health and well-being of the children of the United States, that is, the present health picture of the American Child
 - B The measures that are now being taken through governmental action and through organized private endeavor to promote health and to deal constructively with physical, mental, and social handicaps, that is, what is being done for child health and protection.
 - C. Possible steps to be taken in readjusting and supplementing our community programs for child health and protection to meet the needs of the child more adequately and expeditiously, that is, what ought to be done
- II. To recommend practical means whereby communities may achieve the best in health and protection of the child that our present knowledge and capabilities permit. That is, how shall we do it?

It was planned to have the work of the Conference carried on under five sections (separate yet allied projects being dealt with in three sub-sections): the first on Growth and Development; the second on Medical Service and Public Health Administration; the third on Education and Training; the fourth on the Handicapped Child; the fifth on Public Relations.

Certain guiding principles of procedure for all sections and subsections were adopted as follows:

- I A statement of the present-day situation against the background of former years and of other countries at the present time
- II. A review of the deficiencies and gaps in organized corrective, preventive, and promotive measures and an accounting for their causes and trends.

- III. Practical recommendations of the steps necessary and desirable to correct these deficiencies and bridge the gaps, with due consideration of objectives, research needs, administration, cooperation between existing agencies, legislation, and financing.

With the force and authority of the administration devoted to the consummation of the project, and with leaders of great attainments in the medical, educational and social fields, there is every reason for the belief that a new epoch in child health and protection has been inaugurated

School Health Study

In 1926, our President, Herbert Hoover, suggested that we undertake to determine how effectively the Public Schools of the United States were meeting the health needs of the school child; accordingly the School Health Study was launched, Raymond Franzen, Ph.D., being the Director of Research of the Study; Harold H. Mitchell, M.D., Medical Director.

The School Health Study has three phases:

The contribution of objective measures of health results and health procedures;

A field investigation using these tests;

Statistical treatment of these materials to provide analyses of certain elements of health and the correlation of procedures with results.

In the first year the following were employed in the construction of tests in the gathering of preliminary data: two psychologists and one physician assisted by consultant, doctors, nurses, and dental hygienists.

In the second year the following were employed in field work and tabulation of the data: four physicians, three nurses, three dental hygienists, three physical educators, three health educators, two statisticians, and fourteen clerks.

In the remaining time the following were employed in the statistical analysis and publication of results: two statisticians, two staff assistants, and eight clerks.

The data are from 73 schools in seventy cities. These cities are spread through 38 states.

The actual field work extended over ten months—from September, 1927, to July, 1928. Problem cases were reported immediately to principals and superintendents, and the material was made available to field workers of this organization

Each element of the study—health habits, nutrition, vision, and so forth—was made the subject of rigorous statistical analyses, and a monograph is to appear on each of these subjects. After completion of such analyses the effect of school health procedures will be traced in terms of the values thus determined.

Health Education Tests, which is Monograph Number I, has been published. The following monographs are planned:

Physical Measures of Growth and Nutrition

Factors in Dental Decay

Vision and Hearing

The Measurement of Posture

An Analysis of School Health Procedure

Sociological and Economic Correlates of School Health

Research Projects in School Health

The final publication will base its results upon the research published in these monographs. It will be an attempt to evaluate the school health program.

DIVISION OF PUBLIC HEALTH RELATIONS

Clean and Safe Milk Campaign

Clean and safe milk surveys have been made in the following states since our last annual meeting: Montana, Arkansas, Virginia, Indiana, New Jersey, and Wisconsin

The following recent letter from Mr. Chrisman, Staff Associate, in charge of the work in Wisconsin, to the City Manager of a thriving city having no milk control, will perhaps best illustrate the procedures of the survey in meeting emergency conditions:

“City Manager —, Wisconsin

“Dear Sir: Because I know that you are tremendously interested in improving the quality of the milk consumed in your city and are apprehensive concerning the safety of the present supply, I have prepared this preliminary report.

"Fifty-one samples were collected from the delivery vehicles of twenty-six dairymen, as the milk was being delivered to their customers. The percentages mentioned hereafter are the percentages of the fifty-one samples collected, which represent the milk supply.

Bacteriological, Official Plate Count

14 per cent below 50,000
60 per cent above 300,000
32 per cent above 1,000,000
(All should be under 50,000)

B. Coli

16 per cent Negative
84 per cent Positive
(All should be Negative)

Chemical, Butter Fat Average 4.00 per cent (None of samples were below legal standard)

Solids Not Fat Av. 8.50 per cent (33 per cent of samples were below legal standard of 8.50)

Physical, Grading of Visible Dirt found in one pint of milk

22 per cent Clean
16 per cent Dirty and Very Dirty
(All should be Clean)

Temperature of Milk when delivered to consumers

7 per cent Iced during delivery
76 per cent Above 55° F when collected
(All should be under 55° F.)

Consumption of Whole Milk, per capita daily

.68 of a pint (approximately)

Proportion of Supply Pasteurized

30 per cent pasteurized by three pasteurizing plants

"This survey has revealed that, with the exception of the fact that the supply has a satisfactory Butter Fat Average and comes from tuberculin tested animals, it is of poor quality and is potentially dangerous to the public health. Indeed, this milk supply may be a very important contributor in your high infant mortality, which is considerably higher than the Wisconsin average for diarrhea and enteritis.

"The quality of the milk supply can be enormously improved and the present situation decidedly overcome by the city adopting a proper milk control ordinance and providing for

its effective enforcement. Both field inspection and laboratory control are necessary. As far as the laboratory work is concerned undoubtedly the City can arrange with the State Teachers College to have the laboratory examinations made regularly in its present laboratory. Professor Evans told me that he was very much interested in the milk supply and I am sure that his active cooperation could be secured . . .

"The dairy industry should welcome such a program of milk control and cooperate unhesitatingly, as it has in other sections, for it, in the end, is also directly benefited. Every dairyman would have to meet the same standards, but would be given scientific assistance with his milk production and distribution problems, which is not now available. Indeed, the industry in different sections of the country has already volunteered financial aid to support such a program, having discovered that an increase in milk consumption follows an improved supply."

Intensive follow-up of the survey was carried on in Montana and Indiana, with additional work in Iowa, which was included in my last annual report. The scope of the follow-up in these states is perhaps best illustrated by the following:

Montana		Indiana	
Conferences	50	Conferences	87
Attendance	90	Attendance	105
Meetings	58	Meetings	36
Attendance	5,448	Attendance	1,940
Broadcasts	2	Inspections	105

Expressions of appreciation of the value of the work have been received from State Departments of Health and State Dairy Commissioners in all of these states.

Immediate results have been noted, such as the passage of milk control ordinances; the purchase of milk laboratory equipment (in one instance guaranteed by a local Rotary Club), renewed diligence of milk control officials where local ordinances were not effectively enforced, widespread public interest through group contact and addresses; two local dairymen's associations formed, the purpose of which was to improve the quality of market milk; in one state a number of cases of mastitis was traced to two large dairy herds, one being in a certified milk dairy; and finally a state-wide interest in pasteurization as the ultimate goal for safe milk.

Two County Medical Societies endorsed the work of the milk survey and recommended "proper pasteurization of all milk."

Community Organization

There is an increasing demand for assistance in community organization, as applied to various types of child health work. These requests come from both official and non-official organizations. Upon invitation from the local Welfare Federation and the State Department of Health our social worker and community organizer has made a study of the child health program in Harrisburg, Pennsylvania, offering constructive suggestions for betterment. Similarly the Department of Education in Springfield, Missouri, extended an invitation for assistance in organizing public health opinion back of a school health program for public schools of that city. This has resulted in the request for six months' service from our Division of Health Education in integrating a complete program for health education in the school curriculum. Requests for assistance also came from the St. Paul Council of Parent-Teacher Associations, which are cooperating with the State Department of Health, in inaugurating a state-wide diphtheria prevention program. The Parent-Teacher group is assisting in the Minnesota effort to abolish diphtheria by complete immunization of all susceptible children.

In cooperation with the Division of Publications and Promotion considerable time was spent in West Virginia in helping to promote the work of the Division of Child Hygiene of the State Board of Health. Assistance was also given in the organization of a Section on Child Hygiene in the State Public Health Association. In West Virginia the Executive Committee of this Section will operate as a State Child Health Council.

DIVISION OF MEDICAL SERVICE

During the year 1929 the number of personal contacts with leaders in the medical and the nursing professions dealing directly and indirectly with the various organized programs of child health was extended through visits to twenty-six state departments of health; to nineteen medical colleges; to selected private organizations conducting special studies on certain aspects of child health such as nutrition,

dental caries, body build, and improvements in hearing and vision tests. Better understanding and fuller cooperation with other national associations dealing with special phases or aspects of child health have been furthered to our mutual benefit

Foreign visitors from many countries interested in the medical and nursing aspects of child health preservation and promotion, have been informed of American aims and activities and have themselves contributed to our knowledge, especially as to ways and means of handling the problems associated with their countrymen's endeavors to adapt themselves to living in the United States

Dr. Wilkes has served on the following committees: the Younger Boy Program of the Boy Scouts of America; The Mooseheart Research Program in Child Health and Development; the Trenton, New Jersey, Public Schools Special Education Program; the Summer Round-Up of Children of the National Congress of Parents and Teachers; the Bellevue-Yorkville School Health Service; the Committee on Health Services for School Children of the Children's Welfare Federation of New York City; the Committee on Status of Maternal and Infant Mortality of the Child Hygiene Section of the American Public Health Association; and the First International Congress on Mental Hygiene

Dr. Hayes has been chiefly concerned with the aims, methods and general policies followed by recognized authorities in the maternity, infancy and preschool age groups. She has reviewed the literature and provided new reference lists on child health protection and promotion for use of both professional and lay workers, and for parents

Contributions by the members of the Division Staff have appeared in the *Child Welfare Magazine*; the *Gorgas Memorial Syndicated Newspaper* releases; the *Hospital Social Service Review*, the *Foreign Language Information Service Bulletin*; the CHILD HEALTH BULLETIN; the *American Journal of Public Health* and the *Nation's Health*, and the *Independent Woman*

Lectures on child health were given by Doctor Wilkes to the students in the University and Bellevue Hospital Medical College, and one lecture to the students in the College of Dentistry of New York University.

Miss Heisler lectured to nurses both on the job and to some who

are being trained and educated for the job in several hospitals and universities. She visited hospital and public health clinics to study mental and physical examinations and coordination in regard to health restoration, preservation and promotion. Miss Heisler's studies in various communities of the prevailing trends in child health work and the relative worth of the various activities is based upon statistical data and professional opinion.

Medical Advisory Committee

At the yearly meeting of the American Pediatric Society in St. Louis in May, 1929, the members of the Medical Advisory Committee met. In the future members of the American Child Health Association Medical Advisory Committee will be nominated by the American Pediatric Society at the request of the American Child Health Association.

Nursing Advisory Committee

The Nursing Advisory Committee has been very helpful, giving valuable time and services to aid in providing sound policies and principles, and also in seeing that the problems of the American Child Health Association benefit fully from the nursing service contributions.

DIVISION OF RESEARCH

Surveys and investigations are the major concern of the Division of Research under the directorship of Dr. Palmer. The School Health Study which is administered by this Division has already been mentioned. This Division made statistical inquiries, analyses and compilations for the Association, including the following:

Data on maternal and infant mortality were assembled and the annual Statistical Report of Infant Mortality for 1928 in all cities of the country over 10,000 population was issued; data on milk-borne diseases occurring during the previous year were secured and tabulated for the use of the Conference of State and Provincial Health Authorities through the Division of Public Health Relations. Charts and graphs were prepared for the Association, and bibliographies for publication in our CHILD HEALTH BULLETIN. Items relating to Research

were furnished for press and editorial release through the Division of Publications and Promotion

Dr. Palmer and Dr. Holland, Staff Associate, have participated in the work of Committees of the American Public Health Association, the former with the Committee on Administrative Practice, the latter with the Committee on the Status of Maternity and Infancy of the Child Hygiene Section. The director has been chairman of the sub-committee on Appraisal of City Health Work, which last year conducted the third revision of the Appraisal Form; he is also a member of the sub-committee on Record Forms which has published standard forms for the use of health departments and others.

Dr. Palmer assisted in the work of the National Health Council, serving as chairman of the Library Committee; and taking active part in the intensive study made during the last year of the Common Services of the Council. The committee of which your General Executive was chairman submitted an extensive report, resulting in a general reorganization of these services.

Lectures were given before health associations and in universities on the work of the School Health Study and other phases of child health work.

Upon request of the official and non-official child health agencies of Philadelphia and of Haven Emerson, M.D., who was conducting a Hospital Survey there, a study was made of the records of the Babies' and Children's Hospitals and other institutions dealing with child health for the purpose of reporting on the feasibility of measuring the accomplishments of their child health programs.

DIVISION OF PUBLICATIONS AND PROMOTION

National Child Health Day

Following the passage of the Congressional Resolution designating the first day of May as National Child Health Day, the President of the United States issued the following proclamation:

WHEREAS, the future of our nation rests with the children of today; and

WHEREAS, the good health and protection of childhood is fundamental to national welfare and the march forward of our country must be upon the feet of children; and

WHEREAS, a joint resolution of Congress authorizes and requests the President of the United States to proclaim annually May First as Child Health Day; now

Therefore, I, Herbert Hoover, President of the United States of America, do hereby designate May First, of this year, as Child Health Day and do invite the people of the United States and all agencies and organizations interested in this most important subject to make every reasonable effort to bring about a nation-wide understanding of the fundamental significance of healthy childhood and of the importance of the conservation of the health and physical vigor of our boys and girls throughout every day of the year.

In Testimony Whereof, I have hereunto set my hand and caused the Seal of the United States to be affixed

Done at the city of Washington this twenty-fifth day of March in the year of our Lord one thousand nine hundred and twenty-nine, and of the independence of the United States of America the one hundred and fifty-third.

Mrs Breckinridge, the Director of this Division, reports that May Day chairmen have been appointed in every state in the Union, in the District of Columbia, and in Hawaii. In all but five states the Director of the Division of Child Hygiene of the State Board of Health is serving as state chairman.

The governors of thirty-four states issued proclamations endorsing May Day as National Child Health Day, inviting their people to sober consideration of the welfare and health of the children of their respective communities. Three other governors issued statements pertinent to May Day and one governor was responsible for a May Day radio program.

Many national organizations, religious and commercial groups, and individuals are cooperating with the official state agencies of the Departments of Health and Education in carrying forward the May Day program.

At the annual meeting of State and Provincial Health Authorities of North America held in May of this year, the Conference appointed a National Child Health Day Committee to submit a definite program for National Child Health Day on or before January 15 of each year.

Thus, through resolution by Congress, the annual promulgation of May Day as National Child Health Day by the President, with similar

proclamations made by the governors of various states, and finally by the appointment of a Committee for a National Child Health program, the May Day idea and ideals have become an official instrument for advancing the cause of child health in America.

May Day as Play Day

This year May Day was specially devoted to the idea of recreation and play, which found very popular response throughout the country, particularly in the schools and colleges. The slogan, "Youth is the Strength of America; Make American Youth Strong," has been widely quoted in the press throughout the entire country.

Radio Programs

On the first of May almost every broadcasting station in New York City devoted one or more periods to broadcasting child health. Practically our entire professional staff was utilized for this work. From half-past eight in the morning, when the General Executive took part in the *Chcerio* program, until late in the evening, some member of the staff was on the air. In many other stations throughout the country May Day-Child Health Day was featured. These programs included talks by the Secretary of the Interior, Dr. Wilbur, and a talk on "The Country Child—The Farm's Best Crop" by Secretary Hyde of the Department of Agriculture. Dr. Louise Stanley and five others in the Bureau of Home Economics also gave radio talks.

These radio talks on May first must have reached literally millions of people, the greatest radio program on health ever undertaken.

International Cooperation

May Day gives promise of growing internationally, as correspondence from Scotland, England, and France seemed to indicate. The Marchioness of Aberdeen and Temair was particularly interested in the Play Day idea, and asked for detailed information which she might present to the International Council of Women. An order was placed for 1,000 May Day publications and other May Day and health promotion material for distribution at the London meeting of the Council.

Madam Herbert Pain of Paris, who visited the Association in March and secured May Day material, intimated that she would like to introduce the Play Day idea in her own country.

Press

Excellent cooperation by the daily press, magazines and journals of the country has been noted as in former years.

The results of the May Day activities this year as registered in field work have not yet been tabulated, but promise to exceed all previous similar activities.

State Child Health Councils

State Child Health Councils have been organized in a number of states and increasing interest is being shown throughout the country.

American Child Health Association News

The American Child Health Association News, begun in 1927, has continued as a service primarily to the Divisions of Child Hygiene. Requests from individuals continue to come in

New Publications Issued between August 1, 1928, and July 31, 1929

Child Health Bulletin	1928	September . . .	4,000
		November	2,000
	1929	January	2,500
		March	3,000
		May	2,000
July		3,500	
American Child Health News	1928	August	10,000
	1929	January	10,000
		February	7,000
		May	12,000
		August	7,000
Child Health References for Parents			3,000
Child Health References for Physicians and Nurses			2,000
Classroom Situations as Teaching Opportunities for Health Work			1,500
Health Campaigns and Health Weeks in Schools (Multigraphed)			400
Health Education Tests, Monograph No. 1, School Health Research			2,500
Health Education Test Forms			
Five Rules Test.. . . .			10,000
Five Rules Keys			500
Matching Test			10,000
Matching Keys			500
Story Test			10,000
Story Test Keys			1,000
Time Test			10,000
Time Test Keys			500
True False Test.. . . .			10,000
True False Keys.. . . .			500
Health Education Test Scores			1,000

How the Teacher Can Help in the Correction of Physical Defects	1,000
Statistical Report of Infant Mortality—1928	2,500
May Day Festival Book—1929	15,000
Parent-Teacher Associations and School Health	3,000
Play Day—The Spirit of Sport	10,000
Poster—May Day Official—1929 (Revised 1928)	8,000
Poster—Recreation	8,000
Problem of Sweets for Children (Reprint from C.H.B.)	10,000
Service of Print to May Day	3,000
Some Facts Regarding the American Child Health Association (new ed.)	7,000
The Story of May Day	10,000
Teamwork for Child Health	10,000
Transactions of Fifth Annual Meeting, 1928	1,225
Transactions of Fifth Annual Meeting, 1928 Miscellaneous Reprints	4,200
Total for the year	219,325

Distribution of Publications since the Organization of the Association

Total copies sold	5,950,230
Total copies free	469,592
To members and subscribers	258,586
Grand Total	6,678,408

DIVISION OF HEALTH EDUCATION

In our educational work we have been continuing those policies which have guided the development of this work during the past few years. We have concentrated our efforts along the lines of advisory service to educational groups through personal conferences, correspondence and field visits, we have continued to prepare material which would aid in the development of school health programs; we have deepened our contacts with educational groups, working more and more through administrative and organized educational channels.

In all of this the improved training of teachers for health teaching has been a major consideration

A few instances of cooperation with educational institutions, professional groups, and with other private organizations follow:

National Education Association Miss Whitney, Director of the Division, was appointed a member of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, the appointment to run for three years.

Miss Perrin, our specialist in Physical Education, was reappointed a member of the Executive Committee of the Department of School Health and Physical Education for a term of three years and presided and spoke at a meeting of this department at the annual National Education Association meeting in Atlanta, June 29th to July 5th.

National Council of Education Miss Perrin, who has served on this council for several years, was re-elected and attended its meetings.

World Federation of Education Associations. At the request of the president of the Federation, this Division has agreed to render the same service as for the previous biennial meetings, namely, to edit and publish the report of the Geneva meeting held in July, 1929. The Metropolitan Life Insurance Company will assist in defraying the expenses of printing as it has in other years.

American Home Economics Association Miss Edwards, our Home Economics specialist, has maintained constant contact with the American Home Economics Association as a member of seven different committees.

National Amateur Athletic Federation—Women's Division. Miss Perrin, our specialist in Physical Education, served all the year as Chairman of the Executive Committee of this Women's Division, and was naturally responsible for much of the organization work connected with the annual meeting. Much of this work was carried on cooperatively with that of the Association because of the writing and promotion of the pamphlet, *Play Day—The Spirit of Sport*, and because of the emphasis on recreation for May Day this year. The fact that Mrs Breckinridge is Vice-Chairman of the Women's Division also serves to strengthen the close cooperation between the American Child Health Association and the Women's Division.

Welfare Council of New York City Miss Edwards served as an advisory member of the Health Education Committee on the Section for Dependent Children of the Welfare Council of New York City and has worked out a Health Education self-appraisal sheet for institutions, which will be used during the coming year in 300 institutions in and around New York City.

Other Educational Groups. Representatives of the Division have attended thirty national or local meetings of educational groups, in

which they have participated by public addresses, committee work or private conferences.

Private Organizations. We have worked cooperatively with other private organizations engaged in educational child health work. The service has taken the form of attendance and participation at annual meetings or conferences; advisory criticism on material; and committee work. During the year such cooperation has been given to twenty-two private organizations.

Temporary Supervisory Assistance

This past year has seen the development of a new type of service to schools—which, for lack of a better name, we have termed “Temporary supervisory assistance.”

For some time we have seen a growing problem with which many school administrators were faced, namely, the difficulty of securing for their schools expert assistance to initiate the organization of a well-rounded health program. This need is often of temporary character and an expert is only needed over a limited period of time on a diminishing service basis. At present there is no source from which superintendents can obtain such temporary expert assistance on an independent financial basis. We have, therefore, developed a plan by which Boards of Education can purchase from the Association the time of staff members for such supervisory service—the staff members belonging actually to the school personnel for the allotted time.

This fall we are undertaking our first service of this nature and a staff member has been engaged for 20 weeks full time. Ten weeks service will be given in the fall and ten weeks in the spring. The Association will receive \$2,000 for this service.

We feel that this new service has a real future. It is economically self-supporting, and if it proves a solution for the problem for the schools, it can be enlarged to meet the demand without adding to the division budget.

The increasing demand for lecturers in summer schools at universities can be met by the same staff personnel, who will be all the better equipped as instructors because of their close contact with the field problems of teachers.

Lecture Courses

An increasing number of requests have come from colleges and universities, and Extension Courses for Teachers, for staff members to carry short lecture courses. All of these we could not meet because of staff limitations, but four were accepted for 1929 under a plan of reimbursement to the American Child Health Association:

A three weeks' course in the summer session of Massachusetts Institute of Technology.

Two courses of two weeks' duration at the summer session of the University of Cincinnati

Six lectures in a winter extension course for teachers in Springfield, Massachusetts.

Three lectures were given by different members of the staff in an extension course, organized by the National Research Council and Columbia University.

In addition, seven single lectures were given in summer schools about New York, five to five different groups in New York University, two to two different groups in Teachers College, Columbia University

Advisory Service to Schools

Winston-Salem Teachers College. We have continued rather extensive advisory service to the Winston-Salem Teachers College, an institution which trains colored teachers. This has involved approximately four weeks full time service given in week units through the year. The program is developing most satisfactorily and this fall a health department is being instituted with a full-time nurse. The local physicians and dentists have cooperated through volunteer services and are assuming responsibility for health examinations. The educational program has also advanced under the guidance of a faculty committee. The progress has not been spectacular but has been steady and within the capacity of the group to maintain.

Pitt County, North Carolina. In Pitt County, North Carolina, a study of school health programs, followed by a detailed report, was made cooperatively by the American Public Health Association, the State Federation of Women's Clubs, and the American Child Health Association. The Director of the Division represented the American

Child Health Association in this work. The report was published by the Metropolitan Life Insurance Company and distributed widely through both the state and nationally. Using the Pitt County study as a basis, the Director, at the request of the State Supervisor of Rural Education, participated in three all day conferences in different parts of North Carolina, giving to the county supervisors the mimeographed self-appraisal form which was prepared for use in the Pitt County study.

Other Illustrations of this Service. Increasingly we are being called on for advisory service in local schools, and where such service can be arranged in our schedules we are endeavoring to meet the demand. One city school requested service consisting of instruction of teachers and supervision of their health teaching. This was given for the last half year on the basis of one day a week, and a continuance of this service has been requested for the coming year. We regard this work as a laboratory for developing techniques which may be used elsewhere in supervision.

Sayville Conference

Perhaps the most significant piece of work done by the Division was the planning and holding of the Fifth Health Education Conference.

The holding of these conferences has been an educational service which the American Child Health Association inherited from the Child Health Organization. The conference at Chicago in 1925 was the last one held and the Association felt that with the increasing interest in Health Education the need might be met by programs at educational meetings. However, it became apparent from expressed requests from workers that there was still need for the working type of conference.

Consequently a conference was organized for five days in June at Sayville, Long Island. Building on the experience and outcomes of the previous conferences, the program centered around curriculum building on three school levels: Elementary, Secondary, and Teacher Training. The outstanding characteristic of this conference was the whole-hearted way in which all of the 162 members worked to contribute their experiences and to arrive at satisfactory conclusions.

Summaries of the conclusions were immediately prepared and placed at the disposal of the members, which resulted in their use at eight summer schools in different universities. The printed report is under way.

Articles for Publication

Different staff members have prepared articles, eighteen of which were published in educational journals, during the past year.

CONCLUSION

The work of the past year has, we believe, been useful and productive. Opportunities for service present themselves on every hand. To those of vision and strong of heart there is promise of even greater advance in the cause of child health than has as yet obtained.

